



Calhoun: The NPS Institutional Archive DSpace Repository

Theses and Dissertations

1. Thesis and Dissertation Collection, all items

2004-03

The value of the 1999 USMC retention survey in explaining the factors that influence Marines' subsequent stay/leave behavior

Cakmak, Yasar

Monterey California. Naval Postgraduate School

<http://hdl.handle.net/10945/1697>

Copyright is reserved by the copyright owner

Downloaded from NPS Archive: Calhoun



<http://www.nps.edu/library>

Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community.

Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**THE VALUE OF THE 1999 USMC RETENTION SURVEY
IN EXPLAINING THE FACTORS THAT INFLUENCE
MARINES' SUBSEQUENT STAY/LEAVE BEHAVIOR**

by

Yasar Cakmak

March 2004

Thesis Co-Advisors:

Susan Page Hocevar
Kathryn M. Kocher

Approved for public release; distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY	2. REPORT DATE March 2004	3. REPORT TYPE AND DATES COVERED Master's Thesis
4. TITLE AND SUBTITLE: The Value of the 1999 USMC Retention Survey in Explaining the Factors that Influence Marines' Subsequent Stay/Leave Behavior.		5. FUNDING NUMBERS
6. AUTHOR Yasar Cakmak		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A		10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.		
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE
13. ABSTRACT This study examines the factors that influence active duty Marines in their retention decisions. Data from the 1999 US Marine Corps retention survey are matched with actual retention data from personnel files and limited to Marines eligible to make a stay/leave decision within 24 months of the survey. Four subgroups are defined: enlisted first-term males, enlisted first-term females, enlisted career males and officer junior grade males. Bivariate analysis of explanatory control variables (personal characteristics and military background) and focus variables (responses to questionnaire items about civilian employment opportunities and satisfaction with aspects of military life) indicates significant associations with retention. Factor analysis is used to create seven satisfaction dimensions from the satisfaction variables. Multivariate logistic regression model results show that all the satisfaction dimensions are significant for the enlisted first term male model. Satisfaction dimensions for pay and benefits, health benefits, work equity, current job characteristics, and future career opportunities are significant in one or more of the remaining models. Searching for a civilian job is significant in all models and perceptions of civilian job opportunities are significant in most. Among control variables, the interaction of marital status, dependents, and working spouse has a significant effect on retention for first term enlisted males, the only group large enough to test.		
14. SUBJECT TERMS Marine Corps, Retention, Enlisted Retention, Officer Retention, Survey, Manpower Policy, Manpower, Personnel Attitudes, Perceptions, Satisfaction with the Life in the Military.		15. NUMBER OF PAGES 125
16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified
20. LIMITATION OF ABSTRACT UL		

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**THE VALUE OF THE 1999 USMC RETENTION SURVEY IN EXPLAINING THE
FACTORS THAT INFLUENCE MARINES' SUBSEQUENT STAY/LEAVE
BEHAVIOR**

**Yasar Cakmak
First Lieutenant, Turkish Army
B.S., Turkish Military Academy, 1996**

**Submitted in partial fulfillment of the
requirements for the degree of**

MASTER OF SCIENCE IN MANAGEMENT

from the

**NAVAL POSTGRADUATE SCHOOL
March 2004**

Author: Yasar Cakmak

Approved by: Susan Page Hocevar
Thesis Co-Advisor

Kathryn M. Kocher
Thesis Co-Advisor

Douglas A Brook
Dean, Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This study examines the factors that influence active duty Marines in their retention decisions. Data from the 1999 US Marine Corps retention survey are matched with actual retention data from personnel files and limited to Marines eligible to make a stay/leave decision within 24 months of the survey. Four subgroups are defined: enlisted first-term males, enlisted first-term females, enlisted career males and officer junior grade males.

Bivariate analysis of explanatory control variables (personal characteristics and military background) and focus variables (responses to questionnaire items about civilian employment opportunities and satisfaction with aspects of military life) indicates significant associations with retention. Factor analysis is used to create seven satisfaction dimensions from the satisfaction variables. Multivariate logistic regression model results show that all the satisfaction dimensions are significant for the enlisted first term male model. Satisfaction dimensions for pay and benefits, health benefits, work equity, current job characteristics, and future career opportunities are significant in one or more of the remaining models. Searching for a civilian job is significant in all models and perceptions of civilian job opportunities are significant in most. Among control variables, the interaction of marital status, dependents, and working spouse has a significant effect on retention for first term enlisted males, the only group large enough to test.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND	1
B.	PURPOSE OF THE STUDY.....	2
C.	RESEARCH QUESTIONS	2
D.	BENEFITS OF THE STUDY	3
E.	SCOPE OF THE THESIS.....	3
F.	ORGANIZATION OF THE STUDY.....	4
II.	LITERATURE REVIEW	5
A.	MILITARY RETENTION STUDIES BASED ON SURVEY DATA.....	5
1.	Study by Kocher and Thomas (2000).....	5
2.	Study by the General Accounting Office (2000).....	6
3.	Study by the GAO (2001).....	7
B.	MILITARY RETENTION STUDIES BASED ON NON-SURVEY DATA	8
1.	Enlisted Retention	8
a.	<i>Study by Quester and Adedeji (1991)</i>	8
b.	<i>Study by Moore et al. (1996)</i>	9
2.	Officer Retention.....	10
a.	<i>Study by Lee and Maurer (1999)</i>	10
b.	<i>Study by North et al. (1995)</i>	12
C.	CIVILIAN RETENTION STUDIES.....	13
D.	CHAPTER SUMMARY.....	14
III.	DATA, SAMPLES, AND PRELIMINARY ANALYSIS	17
A.	DATA	17
B.	SAMPLES	17
C.	VARIABLE DESCRIPTIONS	21
D.	PRELIMINARY ANALYSIS.....	26
1.	Enlisted First Term Males	26
2.	Enlisted First Term Females	29
3.	Enlisted Career Males	32
4.	Officer Junior Grade Males	35
E.	CHAPTER SUMMARY.....	38
IV.	METHODOLOGY AND MODEL SPECIFICATION FOR MULTIVARIATE ANALYSIS	39
A.	OBJECTIVE	39
B.	METHODOLOGY	39
C.	THEORETICAL RETENTION MODEL	40
D.	MODEL SPECIFICATION.....	41
E.	CHAPTER SUMMARY.....	46

V.	RESULTS OF MULTIVARIATE MODELS.....	49
A.	RESULTS OF ENLISTED MODELS.....	49
1.	Enlisted First Term Male Model.....	49
2.	First Term Female Model.....	54
3.	Results of Enlisted Career Male Model.....	58
B.	RESULTS OF OFFICER JUNIOR GRADE MALE MODEL.....	62
C.	CHAPTER SUMMARY.....	65
VI.	SUMMARY, CONCLUSION, RECOMMENDATIONS, AND LIMITATIONS .	69
A.	SUMMARY AND CONCLUSIONS.....	69
B.	RECOMMENDATIONS AND LIMITATIONS	72
APPENDIX A. THE 1999 USMC RETENTION SURVEY QUESTIONNAIRE		75
APPENDIX B. PRIMARY MOS LISTINGS FOR MOS CATEGORIES.....		101
APPENDIX C. FACTOR LOADINGS OF COMPOSITE DIMENSIONS		103
BIBLIOGRAPHY		109
INITIAL DISTRIBUTION LIST		111

LIST OF TABLES

Table 1.	Percentages of Stayers and Leavers by Grouping Criteria.....	19
Table 2.	Characteristics of Respondents Used in Analysis	20
Table 3.	Variable Descriptions.....	21
Table 4.	Enlisted First Term Male Demographics by Stay vs. Leave	26
Table 5.	Enlisted First Term Male Attitude/Perceptions by Stay vs. Leave	28
Table 6.	Enlisted First Term Female Demographics by Stay vs. Leave	29
Table 7.	Enlisted First Term Female Attitude/Perceptions by Stay vs. Leave ..	31
Table 8.	Enlisted Career Male Demographics by Stay vs. Leave.....	33
Table 9.	Enlisted Career Male Attitude/Perceptions by Stay vs. Leave	34
Table 10.	Officer Junior Grade Male Demographics by Stay vs. Leave	36
Table 11.	Officer Junior Grade Male Attitude/Perceptions by Stay vs. Leave	37
Table 12.	Rotated Factor Pattern of Questionnaire Items	42
Table 13.	Hypothesized Effects of the Explanatory Variables	43
Table 14.	Model Fit Statistics of Enlisted First Term Male Model	49
Table 15.	Classification Table Validity of Enlisted First Term Male Model	50
Table 16.	Maximum Likelihood Estimates of Enlisted First Term Male Model....	51
Table 17.	Partial Effects of Independent Variables of Enlisted First Term Male Model.....	52
Table 18.	Linear Hypotheses Testing Results of Enlisted First Term Male Model.....	54
Table 19.	Model Fit Statistics of Enlisted First Term Female Model.....	55
Table 20.	Classification Table Validity of Enlisted First Term Female Model	55
Table 21.	Maximum Likelihood Estimates of Enlisted First Term Female Model.....	56
Table 22.	Partial Effects of Independent Variables of Enlisted First Term Female Model.....	57
Table 23.	Linear Hypotheses Testing Results of Enlisted First Term Female Model.....	58
Table 24.	Model Fit Statistics of Enlisted Career Male Model	59
Table 25.	Classification Table Validity of Enlisted Career Male Model	59
Table 26.	Maximum Likelihood Estimates of Enlisted Career Male Model	60
Table 27.	Partial Effects of Independent Variables of Enlisted Career Male Model.....	61
Table 28.	Linear Hypotheses Testing Results of Enlisted Career Male Model...	61
Table 29.	Model Fit Statistics of Officer Junior Grade Male Model.....	62
Table 30.	Classification Table Validity of Officer Junior Grade Male Model	62
Table 31.	Maximum Likelihood Officer Junior Grade Male Model	63
Table 32.	Partial Effects of Independent Variables of Officer Junior Grade Male Model.....	64
Table 33.	Linear Hypotheses Testing Results of Officer Junior Grade Male Model.....	65

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I would like to thank Professor Susan Page Hocevar and Kathryn Kocher for their time, patience, pointed guidance, and assistance in the process of this thesis. I would like to especially thank my lovely wife, Senem, and my son, Sualp, for their support, patience, and the sacrifices made by them in order for me to become a graduate of the Naval Postgraduate School. I would like to also thank the Turkish General Command of Gendarmerie for providing this invaluable education opportunity at the Naval Postgraduate School.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. BACKGROUND

Lack of lateral entry into the military services forces them to commission enough recruits in order to fill required senior grades. Warner and Asch (1995, p. 350) define this problem as the lateral entry constraint “senior personnel must be ‘grown’ from the ranks of junior personnel.”

The Department of Defense (DoD) changed its personnel policy in the late 1980's due to end of the Cold War; this led to the drawdown of the work force in all service branches including the US Marine Corps (USMC). A significant aspect of this policy change was the creation of the incentive separation payment, which was intended to motivate targeted personnel to separate from the workforce earlier than usual during their years of service. The following quote from The Ninth Quadrennial Review of Military Compensation (9th QRMC, 2001) documents the drawdown of the workforce and the consequent decrease in the number of senior personnel and increase in required retention numbers:

As senior personnel begin to separate, the resulting force will be less experienced. For example, in 1995, 28 percent of the enlisted force had between 6 and 12 years of service, today that proportion is 22 percent. The decrease is attributable to low accession levels during the drawdown as well as to lower mid-career retention over the past three years. (9th QRMC, 2001, p. 12)

A report about career force retention in the USMC by Major Goodrum (MPP-20, Headquarters, USMC (HQMC)) explains the significance of this decrease in the number of senior personnel by giving FY 1993 to FY 2000 First Term Alignment Plan (FTAP) requirements as an example.

In 1993, the Corps only brought 3,264 first term Marines or 13.4% of the first term, End of Active Service (EAS) population over into the career force. Since then, the FTAP mission had increased every year. By fiscal year 2000 the FTAP requirement had nearly doubled from 1993 to 5,787 representing 26.0% of the first term EAS population. (MPP-20, HQMC, p. 1)

To determine the factors influencing decisions by Marines to stay or leave active duty voluntarily, an Internet-based retention survey was conducted in 1999 by the Naval Postgraduate School in conjunction with HQMC. Kocher and Thomas (2000) reported in a preliminary analysis of the 1999 USMC retention survey that *Pay and Civilian Opportunities* are the most significant factors influencing the Marines' leave decisions, while *USMC Pride and Values* is the most significant factor influencing the Marines' stay decisions.

Because of technical problems encountered with the Internet-based retention survey, stay/leave intentions of the respondents were not accurate enough to allow precise analysis of the 1999 USMC retention survey database. Given the time that has transpired since the survey date, however, a precise analysis can now be conducted by matching the 1999 USMC retention survey data with data on actual subsequent stay or leave decisions made by Marines who took the Survey.

By merging the actual behavior with the 1999 USMC retention survey results, some insights can now be gathered about the factors that influence Marines in their retention decisions such as differences in demographics and military background, satisfaction with specific aspects of the life in the military, perceptions of civilian employment opportunities.

B. PURPOSE OF THE STUDY

The purpose of the study is to examine the factors that influence Marines in their retention decisions and evaluate the 1999 USMC retention survey results and their accuracy in explaining retention behavior by matching actual behavior with the 1999 USMC retention survey results.

C. RESEARCH QUESTIONS

The primary research questions of the thesis are to identify the factors that influence Marines in their retention decisions and their accuracy in explaining retention behavior. The secondary questions include:

- How do stayers and leavers differ in demographics and military background?

- How do stayers and leavers differ in satisfaction with specific aspects of life in the military, such as family benefits, pay, equipment, and career opportunities?
- What is the influence of civilian employment opportunities on retention behavior?
- Do factors that were initially rated as “most important” to stay/leave decision turn out to be the same factors that predict actual behavior?

D. BENEFITS OF THE STUDY

The literature gives evidence of the complexity and individuality of the retention decision as well as pecuniary and non-pecuniary factors affecting retention behavior. USMC Manpower Planners do not have much influence on pecuniary factors due to limited budget in the short-run. However, if this study can identify non-pecuniary factors that influence Marines’ retention decision, USMC Manpower Planners can create programs developing interventions that might increase retention.

Additionally, if the findings of this study have utility, it may provide a rationale for future longitudinal data collection on intentions of Marines via further retention surveys.

E. SCOPE OF THE THESIS

The scope of thesis includes a review of retention studies and the analysis of survey studies, an evaluation of the 1999 USMC retention survey results and actual behavior, and multiple regression analysis of merged data. Responses to questionnaire items about satisfaction with specific aspects of life in the military and civilian employment opportunities will be the focus of analyses.

This thesis concludes with a discussion of findings and recommendations for the usability of this retention survey in explaining actual behavior and possible implications regarding interventions that might increase retention.

F. ORGANIZATION OF THE STUDY

The study includes six chapters. Chapter II reviews previous military retention studies based on survey and non-survey data and includes a summary of the correlates of job turnover identified in civilian retention studies. Chapter III introduces the data sets used in the study and gives preliminary descriptive statistics of sample sub-groups. Chapter IV describes the theoretical model for retention, discusses the methodology and models used in the study. Chapter V presents results of multivariate logit models. Finally, Chapter VI includes a summary of the study, as well as conclusions, recommendations and limitations.

II. LITERATURE REVIEW

A. MILITARY RETENTION STUDIES BASED ON SURVEY DATA

1. Study by Kocher and Thomas (2000)

In order to identify the factors that influence Marines' decisions to stay or leave military service, an Internet based retention survey was conducted in 1999 by the Naval Postgraduate School in conjunction with HQMC. Data from almost 11,000 respondents were categorized into seven subgroups; first term male enlistees, first term female enlistees, careerist male enlistees, careerist female enlistees, junior grade male officers, junior grade female officers, and field grade male officers. These observations were the basis for a preliminary analysis of the retention decisions of Marines eligible to make a choice between staying on active duty and leaving active service. Groups of respondents were analyzed separately based on status, gender, and seniority. A companion survey of exiting USMC personnel was also undertaken at the same time and analyzed using similar methodology. (Hocever, 2000)

Kocher and Thomas (2000) used factor analysis to create composite variables from questionnaire items dealing with the reasons for leaving and the reasons for staying in the USMC. The composite measures and individual items that had the highest mean values among reasons for staying were: *USMC Pride/Values, Pay, Advancement Opportunities, Medical and Retirement Benefits, and Friends*. Those with the highest mean values among reasons for leaving were: *Pay, Civilian Career Opportunities, Unit Morale, Personal Freedom, and Education Benefits*. Mean values and the significance of the composite measures and individual items differed by groups, due to the nature of the groups. However, *Pay and Civilian Opportunities* were identified as the most significant factors influencing the Marines' leave decisions, while *USMC Pride and Values* was found to be the most significant factor influencing the Marines stay decisions.

2. Study by the General Accounting Office (2000)

In 2000, the General Accounting Office (GAO, 2000) published a descriptive analysis of DoD's 1999 Survey of Active Duty Members. This large-scale survey was fielded to a stratified random sample of more than 30,000 members of all the armed services. It included questionnaire items dealing with factors that were thought to affect retention. The focus of the GAO (2000) study was

(1) satisfaction with military life and the aspects of military life that influence decisions to stay in or leave, (2) the extent to which military personnel are working long hours and spending time away from home, and (3) the personal financial conditions reported by military personnel. (GAO, 2000, p. 1)

The GAO (2000) report emphasized the difference in attitudes between officers and enlisted personnel on overall satisfaction with the military way of life. Their descriptive analysis pointed out that officers had much higher rates of satisfaction with the military way of life than enlisted personnel. About 65 percent of officers indicated that they were satisfied compared to only about 46 percent of enlisted personnel.

The GAO (2000) report addressed the relationship between satisfaction and retention. They report that about 73 percent of those who were satisfied with the military way of life intend to stay on active duty, compared to only 20 percent of those who were dissatisfied.

The results of the preliminary GAO (2000) analysis also included the top five reasons given by active duty personnel for leaving and staying. The top five reasons for leaving or considering leaving were: *Basic Pay, Amount of Personal and Family Time, Quality of Leadership, Job Enjoyment, and Deployments*. The top five reasons for staying or considering staying were: *Basic Pay, Job Security, Retirement Pay, Job enjoyment, and Family Medical Care*.

It is noteworthy that both basic pay and job enjoyment were reported as top reasons for staying or considering staying and also for leaving or considering

leaving. The authors of the report argued that these factors are very important to military personnel and are likely to influence many types of behavior. They also noted that a large increase in pay and increased retirement benefits were approved, but had not yet taken effect at the time of the survey and this might have affected the attitudes and plans of servicemembers.

3. Study by the GAO (2001)

In 2001, the GAO published another report, "First-term Personnel Less Satisfied with Military Life than Those in Mid-Career," (GAO, 2001) which was a follow-up study of the GAO (2000) report discussed above. The study focused on

(1) overall satisfaction with military life and retention intentions, (2) initials reasons for joining the military and their relationship to servicemembers' intent to remain in the military, (3) reasons servicemembers cited for considering leaving active duty, and (4) perceptions of civilian life relative to military life. (GAO, 2001, p. 1)

Some important changes had occurred since the earlier report was published. Economic growth had slowed down and military personnel were receiving higher pay and benefits since the 1999 survey was conducted. The authors recognized that servicemembers' perceptions might be different at the time of report than they were at the time of the survey, reflecting the possible effects on the stay-leave decision of higher pay and benefits, the terrorist attacks on September 11th and the authorization of stop-loss procedures.

In this study the authors also used the DoD's 1999 Survey of Active Duty Members respondent data. They limited the observations by years of service (YOS) and pay grade to define first term and mid-career personnel and excluded mid-career officers who serve in special occupations because they receive their rank through special appointments based on their occupation (e.g., legal officers, chaplains, physicians, dentists, nurses, and veterans).

Their findings pointed out that mid-career enlisted personnel and officers are 77.1 and 48.5 percentage points more satisfied with the overall military way of life than first term enlisted personnel, respectively. Additionally, the answers of

respondents to a survey question asking about their likelihood of staying on active duty in the military if they had to decide at the time they were completing the survey revealed that mid-career enlisted personnel and officers are more likely than first-term enlisted personnel intend to stay on active duty. Specifically, the percentage of personnel stating they intended to stay on active duty was 62% for mid-career enlisted, 63% for officers, and 29% for first term enlisted personnel. The authors of the GAO (2001) report concluded that overall satisfaction with the military way of life was the best predictor of intended retention for first-term enlisted and mid-career military personnel.

B. MILITARY RETENTION STUDIES BASED ON NON-SURVEY DATA

1. Enlisted Retention

a. *Study by Quester and Adedeji (1991)*

Quester and Adedeji (1991) first examined the first-term enlistment decisions of a sample of almost 27,000 Marines from FY 1980 through FY 1990 and then analyzed reenlistment decisions from FY 1988 through FY 1990 separately. Their study attempted to determine possible changes in behavior and to investigate the reenlistment behavior of Marines with five and six year initial contracts, restricting samples to those Marines recommended and eligible for reenlistment in the first 72 months of service.

Quester and Adedeji (1991) estimated the probability of reenlistment using binomial logit models, with the reenlistment decision represented as a binary dependent variable (reenlist, do not reenlist). Their explanatory variables were the Selective Reenlistment Bonus (SRB) multiple, the interaction of SRB with Armed Forces Qualification Test (AFQT) score for Marines testing in the top two categories of AFQT (SRB_AFQT12), the pay grade, background characteristics, length of initial contract, whether or not there was an extension immediately before the decision, the MOS group, the pay index, and the civilian unemployment rate. Then they reexamined the model, excluding the pay index and the civilian unemployment rate, and including FY dummy variables in the model to analyze changes in attitudes in addition to changes in pay and in the civilian unemployment rate.

Their findings indicate that higher levels of SRBs, higher pay grade, longer initial enlistments, higher pay index, and higher civilian unemployment rates associated with higher reenlistment probabilities. On the basis of their results Quester and Adedeji (1991) argued that variation in behavioral decisions about retention is not just due to economic considerations:

Occasionally, however, the meaning of these relationships is still misunderstood. The theoretical model does not say that a Marine will leave the Corps if the Marine can earn more in the civilian sector than in the Marine Corps. There are clearly substantial numbers of Marines who would earn more as civilians than they earn as Marines. (Quester and Adedeji, 1991, p. 6)

In addition, being female, black and married was found to increase the likelihood of an individual's reenlistment, in comparison to other groups. For example, according to their calculated derivatives, being married or having dependents increases an individual's likelihood to reenlist by 18.2 percentage points when compared with an individual who is unmarried or does not have dependents, other considerations being equal. The study also reported that Marines in the upper two AFQT score categories are less likely to reenlist than those in lower AFQT categories, but they are strongly influenced to reenlist by the SRB program.

b. *Study by Moore et al. (1996)*

Moore et al. (1996) focused on the effect of the Navy's drawdown programs on second-term retention behavior by comparing retention rates of sailors who were eligible for the Voluntary Separation Incentive (VSI) or Special Separation Benefit bonuses and those who were not. The data for the study included sailors who made retention decisions between FY 1983 and FY 1994. They used a sample of almost 27,000 observations to analyze second-term retention behavior of Sailors who were between their sixth and tenth years of service (Zone B) at the time they made their decisions in the period FY 1983 through FY 1994.

To overcome any mutual dependence that may occur between eligibility for bonus and retention, they first estimated the probability that a

Sailor qualifies for the VSI/SSB as a function of changes in inventory and billet requirements in his or her rating-pay grade. Then they used this predicted probability of eligibility as a proxy variable in the retention model, with personal characteristics, career variables, and other economic variables. They used a probit model to estimate retention behavior, treating the retention decision as a binary choice; stay (reenlist, extend) or leave on or before the end of contract. Their conceptual model included SRB, civilian employment rate, career variables, and personal characteristics as explanatory variables.

Moore et al. (1996) found that eligibility for the VSI/SSB and higher AFQT scores have a positive effect on the probability of leaving. All else equal, their findings indicated that women are more likely to stay than are men, but married women are more likely to leave than are married men, indicating an interaction of gender with marital status in the effect on retention. However, personnel who have a spouse in the military were found to be less likely to leave than are those with civilian spouses. Additionally, they mentioned that regardless of marital status, the probability of staying increases with the number of children.

Although they found that African-Americans and Hispanics are less likely to stay than whites, the race/ethnicity variables were not significant in their retention model. They argued that the statistical insignificance may be caused by multicollinearity with the unemployment variable.

2. Officer Retention

a. *Study by Lee and Maurer (1999)*

Lee and Maurer (1999) analyzed the effect of family structure on intention to leave and voluntary turnover. Their basic argument was that family structure puts social pressure on the way that family members allocate time and energy to the job (or family). Their first hypothesis was that having a spouse, having an employed spouse, and having an increasing number of children at home all strengthen the effect of intention to leave on actual leaving. This hypothesis contradicts with the findings of the study of Quester and Adedeji (1991). According to the findings of the study of Quester and Adedji (1991), being married or having dependents increases an individual's likelihood to reenlist by

18.2 percentage points when compared with an individual who is unmarried or does not have dependents. Lee and Maurer's (1999) second hypothesis was that these same factors of spouse and dependents would weaken the negative effect of organizational commitment on intention to leave. They felt that the allocation of time and energy tends to create external pressure on the intention to leave.

The authors used data gathered from the US Navy's ongoing survey research programs from 1981 to 1982, and also from archival Navy personnel records for more than 9,000 surface warfare (SW), aviation warfare (AW), and general unrestricted (GU) officers. They stratified the data by major occupational group (SW, AW, and GU officers). They used the COX proportional hazards model to test their first hypothesis and ordinary least squares (OLS) regression analysis to test their second hypothesis. The dependent variable in their COX proportional hazards model was a dummy coded variable with 1 representing voluntary leavers, giving the outcome of conditional probability of leaving. The dependent variable in their OLS regression was the intention to leave, a continuous variable, measured by the response to question, "How certain are you that you will continue an active Navy career at least until you are eligible for retirement?" They used tenure, sex, organizational commitment, having a spouse, having an employed spouse, having children at home, and interactions of organizational commitment with having a spouse, having an employed spouse, and having children at home as explanatory variables.

Lee and Maurer (1999) show empirical evidence for the effects of having a spouse, having an employed spouse, and having increasing number of children at home on intention to leave and organizational commitment. Having an increasing number of children at home was a more important factor than having a spouse or having an employed spouse, both in strengthening the effect of intention to leave upon subsequent or actual leaving, and in weakening the negative effect of organizational commitment on the intention to leave.

Having an increasing number of children at home was significant for SWO and AWO occupational groups for both hypotheses, but having a

spouse was significant in only SWO occupational group for both hypotheses. Having an employed spouse was significant in only GUO occupational group for the first hypothesis. These findings reveal that even though family status has an effect on turnover, it is not consistent for all occupational groups stratified in the Lee and Maurer (1999) study.

b. Study by North et al. (1995)

North et al. (1995) analyzed the three measures of success in an officer's career; augmentation, promotion, and voluntary separation. The researchers looked for evidence of the extent and causes of racial-ethnic and gender differences in success through out the careers of USMC officers.

Using individual background data from HQMC master file and the basic school (TBS), the authors divided the sample into two subgroups, those surviving to 7 years of commissioned service (YCS) and those surviving from 7 to 11 YCS. They developed logistic regression models for each survival group. Their dependent variable was binary (1 if the officer voluntarily survives, 0 otherwise). Their explanatory variables were minority group membership, gender, marital status, physical fitness test score, general classification test (GCT) score, three performance measures (leadership, military, and academic class rank percentiles) at TBS, college major military occupational specialty (MOS) type, prior military service, commissioning source (the US Naval Academy (USNA), Reserve Officer Training Course (ROTC), Officer Candidates Course (OCC), Platoon Leaders Course (PLC), the Marine Enlisted Commissioning Education Program (MECEP), and Enlisted Commissioning Education Program (ECP)), and FY dummy variables.

Controlling for differences in background, the survival to 7 YCS model explained 33 percent of the variation in retention. They argued that differences in retention are not due to racial background or gender, but to commissioning source, occupational type, marital status, GCT score, and TBS leadership class rank. Their regression estimates also showed that nearly all officers whose commissioning source was USNA, ROTC, and ECP voluntarily

survived to 7 YCS while only about 80 percent of MECEP officers and fewer than 70 percent of OCC and PLC officers survived to 7 YCS.

The 7 to 11 YCS retention model explained 12 percent of the variation in the dependent variable, and predicted that male officers were 20 percent more likely to remain than female officers. They also argued that women's retention reflects their making a choice between family and career in these years. The study also presented evidence about making a choice between family and career in these years for female officers. This was evident by differences in analysis of models comparing female major and lieutenant colonels.

C. CIVILIAN RETENTION STUDIES

Cotton and Tuttle (1986) reviewed published studies of employee turnover from articles, book chapters, and other publications, using meta analysis technique. They first obtained Z values for studies by the method of adding Zs and then conducted regression analyses using correlates of explanatory variables of studies with turnover as predictors of Zs. Those variables were

- employment perceptions, unemployment rate, accession rate, and union presence in external category,
- pay, performance, role clarity, task repetitiveness, overall satisfaction, pay satisfaction, satisfaction with work itself, satisfaction with supervision, satisfaction with co-workers, satisfaction with promotion, and organizational commitment in work related category, and
- age, tenure, gender, biographical data, education, marital status, number of dependents, aptitude and ability, intelligence, behavioral intentions, met expectations.

Their findings pointed out that the variables related to turnover producing highly significant meta analysis included employment perceptions, union presence, overall job satisfaction, pay satisfaction, satisfaction with work itself, satisfaction with supervision, organizational commitment, age, tenure, education,

number of dependents, biographical data, met expectations, and behavioral intentions. Their study results also indicated that the significance of the correlate of the pay depends on an employee's status.

Although their study analyzed only studies on civilian employee turnover, most of the variables mentioned as significantly related to turnover are also included in almost all of the military retention studies, even though they are often specified differently. For example, YOS and YCS are used in military studies to capture the influence of tenure on retention.

Their study revealed that both military retention and civilian turnover behavior are influenced by the same broad categories of factors. These include external and internal job related perceptions, personal background, and intentions of the individual.

D. CHAPTER SUMMARY

This chapter reviews previous literature on military retention to provide a background for developing a theoretical model to analyze the factors that influence Marines in their decisions to leave active duty voluntarily or stay. A summary of the correlates of job turnover identified in civilian retention studies is also included.

An overview of survey-based military studies points out the multifaceted nature of the retention decision. This is insightfully stated in the GAO (2000) report:

The retention decision is complex and highly personal, and servicemembers use a summation of their own individual experiences, their perceptions of military and civilian opportunities, and their overall personal and family well-being when deciding whether to stay in or leave the military. (GAO, 2001, p. 2)

These studies often emphasize the importance of the effects of basic pay and job satisfaction on retention, both in motivating some personnel to leave and motivating other personnel to stay, regardless of their status.

Studies based on data that are derived from military personnel records and other non-survey sources also reveal that non-pecuniary as well as

pecuniary factors are important in predicting retention behavior. Factors such as family structure, bonuses, commissioning source, among others are shown to influence retention decisions.

The reviewed literature on military retention indicates that retention behavior is a function of personal background, family status, military background, job satisfaction, and economic variables. These are similar to the influences that have been identified in the civilian retention literature.

THIS PAGE INTENTIONALLY LEFT BLANK

III. DATA, SAMPLES, AND PRELIMINARY ANALYSIS

A. DATA

This study analyzes the data obtained from the 1999 USMC retention survey that has been matched with personnel records. The 1999 USMC retention survey was conducted by the Naval Postgraduate School in conjunction with HQMC, via the Marines On Line (MOL) web site. It was originally intended that the survey be completed by all Marine Corps personnel during the period from April, 1999 to October, 1999 (Kocher and Thomas, 2000, p. 3). However, both software and hardware problems limited the survey to those who responded before September, 1999 yielding 17,324 records.

The components of the 1999 USMC retention survey include: demographics and military background, perceptions of civilian employment opportunities, factors important to the desire to leave the USMC and ranking of factors most important to leaving, factors important to the desire to stay in the USMC and ranking of factors most important to staying, overall satisfaction, and satisfaction with specific aspects of life in the military such as family environment and personal life, pay and benefits, job characteristics, training and equipment, career opportunities, work environment and tempo, leadership, culture and standards. A printed version of the 1999 USMC retention survey questionnaire from the study of Kocher and Thomas (2000, pp. 24-48) is presented in Appendix A.

Personnel data files for the retention survey respondents were obtained from HQMC. These data files included information about the demographics and military background of survey respondents (at date of survey and as of 01, January 2004), as well as separation dates and codes for those who left the USMC subsequent to the retention survey.

B. SAMPLES

The 1999 USMC retention survey yielded 17,324 records of those Marines who responded in four months of data collection, via MOL web site. Technical

difficulties regarding accessing and completing the survey resulted in 3,141 incomplete records, limiting the sample size to 14,183.

Additionally, some other restrictions were applied to eliminate records of those who did not have the choice to leave or to stay and those who were near retirement eligibility. Respondents with more than 12 YOS and who were older than 45 years of age were considered to be heavily influenced to stay to retirement and they were eliminated from the sample. For officers, Marines who had less than 5 YOS also were deleted from the sample to limit the sample to those who had the choice to leave or stay. The reasoning behind this is that the longest service obligation for an active duty officer is for USNA graduates. For enlistees, the data were restricted to those Marines who had two years or fewer remaining on their current enlistment. This led to the most significant drop in the sample used for analysis. The major justification for this was to have a reasonable time period such that attitudes rated in 1999 might be linked to actual stay/leave behavior. The study uses a 2-year window for this.

The literature indicates that retention behavior and the factors that influence retention differ by status, seniority and gender. This study also uses officer/enlisted status, seniority and gender as grouping criteria. The percentages of stayers and leavers by grouping criteria, shown in Table 1, indicate that percentages of stayers in the actual data vary by officer/enlisted status, seniority and gender. Almost 93 percent of the officer field grade male sample are stayers while only 32 percent of the enlisted first term male sample are stayers.

Because of the small sample size it was not possible to analyze enlisted career female, officer junior grade female, officer field grade male, officer field grade female, and warrant officer samples separately. Only 5 enlisted career females, 3 officer junior grade females, and 5 officer field grade males were leavers while all of officer field grade females and warrant officers were stayers in the actual data set. This caused a validity problem for tests of differences within these subgroups. Therefore, they were also omitted from the data set. The final

analysis examines only four groups; enlisted first term males, enlisted first term females, enlisted career males, and officer junior grade males.

Table 1. Percentages of Stayers and Leavers by Grouping Criteria

		Stay %	Leave %	Number
Enlisted				
First Term				
	Male	32.18	67.82	3549
	Female	39.56	60.44	321
Career (more than 1 term)				
	Male	72.54	27.46	885
	Female	87.50	12.50	40
Officer				
Junior Grade				
	Male	85.54	14.46	332
	Female	82.35	17.65	17
Field Grade				
	Male	92.86	7.14	70
	Female	100		1
Warrant Officers		100		32

Source: Author

The final data set has 5,087 observations after these restrictions were made to ensure that the final data set includes only Marines who are making a voluntary stay or leave decision within a reasonable time proximity to the original retention survey and that the final data set has samples with enough variation for analysis. The characteristics of the final data set, as shown in Table 2, reveal that the majority of respondents, almost 94 percent, are enlisted. Almost 82 percent of enlistees are serving in their first term, 31 percent of enlistees are in ranks between E1 to E3 and those remaining are in ranks between E4 to E7. Almost 83 percent of officers are junior grade officers and their ranks range from O1 to O3.

Only 7 percent of enlistees are female. Whites are the largest race/ethnicity group among both enlistees and officers; about 65 percent of enlistees and 81 percent of officers in the sample are White. Almost 12 percent of enlistees are Black, 16 percent are Hispanic, and 7 percent belong to other race/ethnicity groups. Almost 9 percent of officers are Black, 5 percent are Hispanic, and 6 percent belong to other race/ethnicity groups.

Table 2. Characteristics of Respondents Used in Analysis

		Number	Percent
Enlisted/Officer Status			
Enlisted		4755	93.47
Officer		332	6.53
	(Total)	(5087)	(100)
Pay Grade			
Enlisted			
E1- E3		1458	30.66
E4- E7		3297	69.34
	(Total)	(4755)	(100)
Officer			
O1- O3		332	100
04		N/A	N/A
	(Total)	(420)	(100)
Term of Service			
Enlisted			
First Term		3870	81.39
Career		885	18.61
	(Total)	(4755)	(100)
Officer			
Junior Grade		332	100
Field Grade		N/A	N/A
	(Total)	(332)	(100)
Female			
Enlisted		321	6.31
Officer		N/A	N/A
Race/Ethnic Group			
Enlisted			
White		3094	65.07
Black		581	12.22
Hispanic		740	15.56
Other		340	7.15
	(Total)	(4755)	(100)
Officer			
White		269	81.02
Black		29	8.73
Hispanic		15	4.52
Other		19	5.73
	(Total)	(332)	(100)

Source: Author

C. VARIABLE DESCRIPTIONS

The dependent variable is “stay,” a binary variable that takes on a value of 1 if a Marine voluntarily chose to stay on active duty when faced with a stay/leave decision and a value of 0 otherwise. Independent variables include personal characteristics, family status and military background of the survey respondents as control variables. Focus variables include responses to survey questionnaire items about perceptions of civilian opportunities and the factor scores resulting from a factor analysis of the responses to survey questionnaire items about satisfaction with aspects of military life.

Details of the dependent variable, the personal and military background variables, and the survey questionnaire items used in descriptive statistics and retention models are presented in Table 3.

Table 3. Variable Descriptions

Variable Description	Variable Name	Variable Type	Range
Dependent variable			
Whether Marine stays on active duty voluntarily until two years (31 July 2001) after survey date	STAY	Binary	=1 if Marine stays, =0 otherwise
Independent Variables			
Personal Characteristics			
<u>Race/Ethnic</u>			
White	White		=1 if White, =0 otherwise
African American	Black		=1 if Black, =0 otherwise
Hispanic	Hispanic	Binary	=1 if Hispanic, =0 otherwise
Other Race/Ethnicity	Other_RE		=1 if Other, =0 otherwise
<u>Family Status</u>			
Single with No Dependents	SND		=1 if single and has no dep., =0 otherwise
Single With Dependents	SWD		=1 if single and has dep., =0 otherwise
Married with No Dependents having Non-working Spouse	MNDSN		=1 if married, has no dep. and non-working spouse, =0 otherwise
Married With Dependents having Non-working Spouse	MWDSN	Binary	=1 if married, has dep. and non-working spouse, =0 otherwise
Married with No Dependents having Working Spouse	MNDSW		=1 if married, has no dep. and working spouse, =0 otherwise
Married with Dependents having Working Spouse	MWDSW		=1 if married, has dep. and working spouse, =0 otherwise

Table 3. (Continued)

Variable Description	Variable Name	Variable Type	Range
<u>AFQT Score</u>			
AFQT Category I-II	AFQT12		=1 if AFQT score above 64, =0 otherwise
AFQT Category IIIA	AFQT3A	Binary	=1 if AFQT score below 65 and above 49, =0 otherwise
AFQT Category Below IIIA	AFQTB3A		=1 if AFQT score below 50, =0 otherwise
<u>Education</u>			
Some College (At least 1 year)	SOMECELL	Binary	=1 if has at least 1 or more yr. of college education, =0 otherwise
<u>Type of Housing</u>			
Whether living in Mil. housing	LIVINMILHOU	Binary	=1 if living in mil. Housing, =0 otherwise
<u>Military Background</u>			
<u>MOS Groupings</u>			
Combat Arms	ARMS		=1 if MOS is Combat Arms, =0 otherwise
Combat Support	SUPPORT	Binary	=1 if MOS is Combat Support, =0 otherwise
Combat Service	SERVICE		=1 if MOS is Combat Service, =0 otherwise
<u>Pay Grade</u>			
E1-E3	E1E3	Binary	=1 if the pay grade is E1-E3, =0 otherwise
E4-E7	E4E7		=1 if the pay grade is E4-E7, =0 otherwise
Years of Service	YOS	Continuous	1 - 12
Entry Age	ENTAGE	Continuous	17 - 34
<u>Satisfaction with</u>			
<u>Leadership and Morale</u>			
Seniors demonstrate, through personal example, high standards of behavior and ethics	LMODEL	Ordinal	Agree response format 1-4
Seniors encourage innovation	LINNOV	Ordinal	Agree response format 1-4
Seniors clearly explain what is expected in performance	LEXPECT	Ordinal	Agree response format 1-4
Seniors give clear and timely feedback on individual performance	LFDBK	Ordinal	Agree response format 1-4
Seniors enforce performance standards fairly	LFAIR	Ordinal	Agree response format 1-4
Seniors encourage unit cohesiveness	LCOHER	Ordinal	Agree response format 1-4
Seniors show respect for subordinates	LSUBOR	Ordinal	Agree response format 1-4

Table 3. (Continued)

Variable Description	Variable Name	Variable Type	Range
Seniors support career development	LSUPP	Ordinal	Agree response format 1-4
Seniors develop, encourage, and facilitate learning	LLEARN	Ordinal	Agree response format 1-4
Seniors try to see having the resources to do jobs	LRESOU	Ordinal	Agree response format 1-4
Seniors encourage open and candid discussion about unit problems	LOPENU	Ordinal	Agree response format 1-4
Seniors keep people informed about issues affecting them	LCOMM	Ordinal	Agree response format 1-4
Seniors have the technical knowledge and mil. skills	LTECH	Ordinal	Agree response format 1-4
Seniors keep us focused on unit readiness	LREADY	Ordinal	Agree response format 1-4
Seniors clearly communicate goals and plans	LGOALS	Ordinal	Agree response format 1-4
Seniors listen to and consider my input	LINPUT	Ordinal	Agree response format 1-4
Seniors put the good of the unit above personal ambition	LFOCUS	Ordinal	Agree response format 1-4
Seniors recognize and reward good performance	LRECOG	Ordinal	Agree response format 1-4
Seniors try to see that outside demands do not interfere with scheduled training	LXTRNG	Ordinal	Agree response format 1-4
Rewards and recognition are given to those who deserve	LREWRD	Ordinal	Agree response format 1-4
Seniors encourage open and candid discussion about personal problems	LOPENP	Ordinal	Agree response format 1-4
Seniors encourage me to take on leadership responsibilities	LMLEAD	Ordinal	Agree response format 1-4
The morale in my unit is...	SMORAL	Ordinal	1 very low, 2 low, 3 moderate, 4 high, 5 very high
When mistakes occur, those involved take responsibility	SOWNUP	Ordinal	1 never, 2 seldom, 3 some of the time, 4 most of the time, 5 all of the time
Pay and Benefits	PayBen	Continuous	Factor Scores (standardized)
Total Military Compensation	BTOTPAY	Ordinal	Satisfaction response format 1-4
The amount of base pay	BBASPAY	Ordinal	Satisfaction response format 1-4
The availability of special pays	BSLPAYAV	Ordinal	Satisfaction response format 1-4
The amount of reimbursement for PCS moves	BPCS	Ordinal	Satisfaction response format 1-4

Table 3. (Continued)

Variable Description	Variable Name	Variable Type	Range
The amount of Basic Housing Allowance (BAH)	BBAH	Ordinal	Satisfaction response format 1-4
Retirement benefits as outlined under current law	BRETC	Ordinal	Satisfaction response format 1-4
MWR Benefits	BMWR	Ordinal	Satisfaction response format 1-4
Educational Benefits	BEDUC	Ordinal	Satisfaction response format 1-4
<u>Health Benefits</u>	HealthBen	Continuous	Factor Scores (standardized)
The availability of medical care	BMEDAV	Ordinal	Satisfaction response format 1-4
The quality of medical care	BMEDQ	Ordinal	Satisfaction response format 1-4
Dental care	BDENTAL	Ordinal	Satisfaction response format 1-4
<u>Current Job</u>	CurrJob	Continuous	Factor Scores (standardized)
The level of responsibility in current Job	JRESP	Ordinal	Satisfaction response format 1-4
Current Job Assignment	JCURR	Ordinal	Satisfaction response format 1-4
The level of challenge in current job	JCHAL	Ordinal	Satisfaction response format 1-4
The extent to which are assigned to jobs within primary MOS	JMOS	Ordinal	Satisfaction response format 1-4
The authority given to do job	JAUTH	Ordinal	Satisfaction response format 1-4
My contributions help my unit accomplish its missions	JCONTRIB	Ordinal	Agree response format 1-4
Ability to have some influence over assignments in USMC	CASIGN	Ordinal	Satisfaction response format 1-4
The number of hours required to work	JHOURS	Ordinal	Satisfaction response format 1-4
<u>Discrimination</u>	Disc	Continuous	Factor Scores (standardized)
Command's response to instances of gender discrimination or sexual harassment	SGENDER	Ordinal	Satisfaction response format 1-4 with additional response category, -9, not applicable
Command's response to instances of racial/ethnic discrimination	SRACE	Ordinal	Satisfaction response format 1-4 with additional response category, -9, not applicable
Command's response to instances of religious discrimination	SRELIG	Ordinal	Satisfaction response format 1-4 with additional response category, -9, not applicable
<u>Future Expectations</u>	FutCrExp	Continuous	Factor Scores (standardized)
Opportunities for career development (training, education) in USMC	CDEV	Ordinal	Satisfaction response format 1-4
Opportunities for promotion and advancement in USMC	CADVOP	Ordinal	Satisfaction response format 1-4

Table 3. (Continued)

Variable Description	Variable Name	Variable Type	Range
Civilian Employment Opportunities			
Job Security in USMC	CSECUR	Ordinal	Satisfaction response format 1-4
<u>Work Equity</u> “Pick up the load” due to the unit being understaffed “Pick up the load” because seniors in the chain of command do not assign work fairly	WorkEq JUSTAFF JWKFAIR	Continuous Ordinal Ordinal	Factor Scores (standardized) Frequency response format 1-5 Frequency response format 1-5
Likelihood of finding a good civilian job	EPROB	Ordinal	Probability response format 0-10
Whether actively looked for civilian employment in the past 12 months	ESRCH	Binary	=1 if the response is yes, 0 otherwise
Whether gained skills in USMC that are highly marketable for civilian employment	ESKILLS	Ordinal	Agree response format 1-4

* See Appendix B for Primary MOS list of MOS groupings.

Source: Author

Due to the small sample size, adjustments were made to the race/ethnic variables for officers and family status variables for officers and first term female enlistees. The race/ethnic group variables are redefined as a single binary variable, MINORITY, equal to 1 if Black, Hispanic, or Other race/ethnicity, and 0 otherwise. The family status variables are redefined as a set of categorical variables that includes these categories: single (SINGLE) for SND and SWD, married with no dependents (MND) for MNDSW and MNDSN, and married with dependents (MWD) for MNDSW and MNDSN.

Response formats for questionnaire items used in preliminary descriptive analysis and factor analysis include satisfaction response format, agree response format, frequency response format, and probability response format. Satisfaction and agree response formats range from 1 to 4. Both have a value of 1 representing very low, 4 representing very high, 2 and 3 representing intermediate degrees of satisfaction or agreement. Frequency response format range is between 1 and 5, a value of 1 represents high frequency, 5 low

frequency, 2, 3, and 4 in between. Probability response format range is between 0 and 10, a value of 0 represents zero probability, 10 represents certainty, and others (value of 1 to 9) represent an increase in probability by 10 percent.

D. PRELIMINARY ANALYSIS

Descriptive statistics for the variables are presented in Tables 4 through 11 for THE four subgroups used in analysis. Percentages of stayers and leavers, the number of observations, and p-value of Chi-Square tests for independence are included for categorical or binary variables when valid. For other variables the mean value for stayers and leavers, the number of observations, and p-value of two sample t-tests are presented.

1. Enlisted First Term Males

Of the 3,549 enlisted male Marines serving in their first term, 32 percent are stayers. Table 4 shows that the stay/leave decision differs significantly by race/ethnic group, family status, type of housing, MOS, and pay grade. The stay/leave decision does not differ significantly by AFQT score or education for the enlisted first term male sample. Although Whites are the largest race/ethnicity group (65%), Whites have the smallest percentage of stayers (28.62) and Blacks have the largest percentage of stayers (47.63). The enlisted first term males who are single with no dependents represent the lowest percentage of stayers (26.88) while those who are married with dependents do not a working spouse represent the highest percentage of stayers (44.08). Additionally, those having a primary MOS in combat support or combat service, high pay grade, and living in military housing have higher percentages of stayers than those who do not. Table 4 also shows that stayers and leavers have significantly different mean values for YOS ($p < .01$), and entry age ($p < .05$), due to large sample size, but these differences have little practical significance.

Table 4. Enlisted First Term Male Demographics by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Race/Ethnic				.0001
White	2327	28.62	71.38	
Black	380	47.63	52.37	
Hispanic	592	36.15	63.85	
Other	250	32.40	67.60	

Table 4. (Continued)

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Family Status				.0001
SND	2024	26.88	73.12	
SWD	148	35.81	64.19	
MNDSN	191	37.70	62.30	
MWDSN	397	44.08	55.92	
MNDSW	437	37.07	62.93	
MWDSW	352	38.64	61.36	
AFQT				.1668
AFQT12	1602	30.65	69.35	
AFQT3A	909	34.21	65.79	
AFQTB3A	1036	32.72	67.28	
Education				.4581
SOMECELL	671	33.38	66.62	
No College	2878	31.90	68.10	
Type of Housing				.0001
Military	1409	36.05	63.95	
Civilian	2140	29.63	70.37	
MOS				.0001
Combat Arms	691	23.88	76.12	
Combat Support	1309	34.91	65.09	
Combat Service	1549	33.57	66.43	
Pay Grade				.0001
E1-E3	1338	24.96	75.04	
E4-E7	2211	36.54	63.46	
Years of Service	3549	2.73	2.62	.0057
Entry Age	3549	19.80	19.64	.0305

Source: Author

Table 5 shows that the percentage of stayers is significantly lower for enlisted first term male Marines who reported that they were searching for a job ($p<.01$), compared to those who were not. Stayers have significantly lower mean values for their perceptions about finding a good civilian job ($p<.01$). Stayers have significantly higher mean values for most of the satisfaction variables and satisfaction with their command's response to racial discrimination at the 1% level, and the response to gender and religious discrimination at the 5% level. Table 5 also shows that stayers/leavers do not have significantly different mean values for their opinions about the frequency of "picking up the load" due to understaffing in their units.

Table 5. Enlisted First Term Male Attitude/Perceptions by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Civilian Employment Perceptions				
ESRCH				.0001
Yes (1)	1829	25.81	74.19	
No (0)	1720	38.95	61.05	
ESKILLS	3549	2.98	2.92	.0643
EPROB	3549	7.64	7.89	.0026
Satisfaction with Leadership and Morale				
LMODEL	3549	2.96	2.78	.0001
LINNOV	3549	2.96	2.74	.0001
LEXPECT	3549	3.09	2.92	.0001
LFDBK	3549	2.78	2.63	.0001
LFAIR	3549	2.90	2.69	.0001
LCOHER	3549	3.02	2.84	.0001
LSUBOR	3549	2.89	2.69	.0001
LSUPP	3549	2.98	2.73	.0001
LLEARN	3549	3.03	2.81	.0001
LRESOU	3549	3.04	2.89	.0001
LOPENU	3549	2.90	2.70	.0001
LCOMM	3549	2.83	2.65	.0001
LTECH	3549	3.13	2.95	.0001
LREADY	3549	3.13	2.99	.0001
LGOALS	3549	3.03	2.84	.0001
LINPUT	3549	2.89	2.71	.0001
LFOCUS	3549	2.88	2.72	.0001
LRECOG	3549	2.65	2.53	.0001
LXTRNG	3549	2.83	2.68	.0001
LREWRD	3549	2.51	2.37	.0001
LOOPENP	3549	2.93	2.73	.0001
LMLEAD	3549	3.33	3.12	.0001
SMORAL	3549	2.79	2.56	.0001
SOWNUP	3549	3.15	3.04	.0044
Pay and Benefits				
BTOTPAY	3549	2.48	2.24	.0001
BBASPAY	3549	2.17	2.04	.0001
BSLPAYAV	3549	2.36	2.23	.0001
BPCS	3549	2.57	2.44	.0001
BBAH	3549	2.46	2.37	.0045
BRETC	3549	2.41	2.33	.0074
BMWWR	3549	2.84	2.74	.0020
BEDUC	3549	3.03	2.86	.0001
Health Benefits				
BMEDAV	3549	3.16	2.96	.0001
BMEDQ	3549	2.89	2.68	.0001
BDENTAL	3549	3.14	2.94	.0001
Current Job				
JRESP	3549	3.14	2.92	.0001
JCURR	3549	2.88	2.64	.0001
JCHAL	3549	3.06	2.87	.0001
JMOS	3549	2.87	2.64	.0001
JAUTH	3549	2.97	2.71	.0001
JCONTRIB	3549	3.56	3.36	.0001

Table 5. (Continued)

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
CASIGN	3549	2.76	2.59	.0001
JHOURS	3549	2.69	2.47	.0001
Discrimination				
SGENDER	3549	3.85	3.77	.0472
SRACE	3549	3.75	3.61	.0008
SRELIG	3549	4.15	4.07	.0200
Future Career Expectations				
CDEV	3549	2.89	2.55	.0001
CADVOP	3549	2.76	2.52	.0001
CSECUR	3549	3.25	3.11	.0001
Work Equity				
JUSTAFF	3549	2.57	2.59	.4981
JWKFAIR	3549	3.36	3.22	.0003

Source: Author

2. Enlisted First Term Females

Of the 321 enlisted female Marines serving in their first term, almost 40 percent are stayers. Table 6 shows that the stay/leave decision differs significantly by race/ethnic group ($p<.10$), and pay grade ($p<.05$). The stay/leave decision does not differ significantly by family status, AFQT score, education, type of housing or MOS for the enlisted first term female sample. As with enlisted first term males, White females have the smallest percentage of stayers (33.94) and Blacks have the largest percentage of stayers (52.17). Although the stay/leave decision does not differ significantly by family status, married with no dependents have lower percentage (32.05) of stayers compared to single (42.77) and married with dependents. Table 6 also shows that stayers have significantly higher mean values for YOS ($p<.10$), but do not have significantly different mean values for entry age.

Table 6. Enlisted First Term Female Demographics by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Race/Ethnic				.0789
White	165	33.94	66.06	
Black	69	52.17	47.83	
Hispanic	57	40.85	59.65	
Other	30	40.00	60.00	

Table 6. (Continued)

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Family Status				.4303
Single	166	42.77	57.23	
MND	77	32.05	67.95	
MWD	78	40.26	59.74	
AFQT				.3243
AFQT12	131	41.22	58.78	
AFQT3A	114	42.11	57.89	
AFQTB3A	75	32.00	68.00	
Education				.3580
SOMECELL	87	43.68	56.32	
No College	234	38.03	61.97	
Type of Housing				.6734
Military	85	37.65	62.35	
Civilian	236	40.25	59.75	
MOS				.5837
Combat Arms				
Combat Support	118	41.53	58.47	
Combat Service	203	38.42	61.58	
Pay Grade				.0455
E1-E3	120	32.50	67.50	
E4-E7	201	43.78	56.22	
Years of Service	321	2.67	2.46	.0828
Entry Age	321	19.72	19.80	.7358

Source: Author

Table 7 shows that the percentage of the stayers is significantly lower for Marines who reported that they were searching for a job ($p<.05$), compared to those who were not. The stayers/leavers do not have significantly different mean values for their perceptions about finding a good civilian job or the perceived marketability of their skills. Stayers have significantly higher mean values ($p<.05$) for their satisfaction with seniors' encouragement of innovation, seniors' clear and timely feedback on individual performance, seniors' respect for subordinates, seniors' support for career development, seniors' approach to learning, seniors' provision of resources to do jobs, seniors' efforts to keep people informed about issues affecting them, seniors' communication of goals and plans, seniors' recognition and rewards for good performance, and seniors' encouragement to take on leadership responsibilities. Stayers have significantly higher mean values for their satisfaction with total pay and basic pay ($p<.01$) and the amount of BAH,

retirement benefits as outlined under current law, and quality of medical care ($p<.05$). Stayers have significantly higher mean values for their satisfaction with the extent to which they are assigned to jobs within their primary MOS, and their ability to have some influence over assignments in the USMC ($p<.05$). Stayers have significantly higher mean values for satisfaction with their command's response to gender discrimination ($p<.01$), and the command's response to racial discrimination ($p<.05$). Stayers also have significantly higher mean values for satisfaction with opportunities for career development (training, education) in the USMC ($p<.01$). Table 7 also shows that first term female enlisted stayers/leavers do not have statistically different mean values for their opinions about the frequency of "picking up the load" due to understaffing in their units or perceptions of unfairness in the way seniors make work assignment.

Table 7. Enlisted First Term Female Attitude/Perceptions by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Civilian Employment Perceptions				
ESRCH				.0455
Yes (1)	120	32.50	67.50	
No (0)	201	43.78	56.22	
ESKILLS	321	2.94	2.81	.2536
EPROB	321	7.12	7.38	.3502
Satisfaction with Leadership and Morale				
LMODEL	321	2.81	2.69	.2722
LINNOV	321	2.97	2.77	.0401
LEXPECT	321	3.13	2.99	.1607
LFDBK	321	2.87	2.62	.0211
LFAIR	321	2.83	2.73	.3362
LCOHER	321	2.87	2.82	.5770
LSUBOR	321	2.90	2.63	.0191
LSUPP	321	3.02	2.79	.0217
LLEARN	321	3.09	2.90	.0349
LRESOU	321	3.15	2.97	.0477
LOPENU	321	2.93	2.74	.1034
LCOMM	321	2.89	2.64	.0192
LTECH	321	3.08	2.99	.2891
LREADY	321	3.08	2.96	.1543
LGOALS	321	3.07	2.84	.0164
LINPUT	321	2.99	2.80	.0720
LFOCUS	321	2.75	2.69	.4988
LRECOG	321	2.75	2.54	.0456
LXTRNG	321	2.89	2.72	.0822
LREWRD	321	2.50	2.49	.9348
LOOPENP	321	2.85	2.75	.3199
LMLEAD	321	3.33	3.11	.0249

Table 7. (Continued)

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
SMORAL	321	2.60	2.54	.5962
SOWNUP	321	3.10	3.00	.3665
Pay and Benefits				
BTOTPAY	321	2.63	2.36	.0027
BBASPAY	321	2.47	2.20	.0045
BSLPAYAV	321	2.50	2.34	.1317
BPCS	321	2.67	2.54	.1506
BBAH	321	2.75	2.54	.0335
BRETC	321	2.64	2.43	.0292
BMWWR	321	2.99	2.86	.1974
BEDUC	321	3.32	3.17	.1154
Health Benefits				
BMEDAV	321	2.98	2.92	.5410
BMEDQ	321	2.83	2.59	.0297
BDENTAL	321	3.11	3.00	.2483
Current Job				
JRESP	321	3.10	3.03	.4832
JCURR	321	2.79	2.62	.1439
JCHAL	321	3.00	2.79	.0607
JMOS	321	2.82	2.55	.0167
JAUTH	321	2.92	2.85	.5040
JCONTRIB	321	3.40	3.32	.3948
CASIGN	321	2.84	2.64	.0467
JHOURS	321	2.79	2.62	.1321
Discrimination				
SGENDER	321	3.37	2.98	.0082
SRACE	321	3.64	3.47	.2257
SRELIG	321	4.23	3.98	.0460
Future Career Expectations				
CDEV	321	2.97	2.69	.0069
CADVOP	321	2.65	2.45	.0879
CSECUR	321	3.18	3.11	.4071
Work Equity				
JUSTAFF	321	2.65	2.63	.9035
JWKFAIR	321	3.27	3.23	.7374

Source: Author

3. Enlisted Career Males

Of the 885 enlisted male Marines serving in their second or subsequent terms, 72 percent are stayers. Table 8 shows that the stay/leave decision differs significantly by type of housing ($p<.10$), and MOS ($p<.05$) with combat service having the lowest percentage of stayers (68.29) compared with combat arms (77.67) and combat support (75.81). The stay/leave decision does not differ significantly by race/ethnic group, family status, AFQT score, or education for the enlisted career male sample. Table 8 also shows that stayers have significantly different mean values for YOS ($p<.01$), with stayers having higher YOS (8.43)

compared with leavers (6.96). Enlisted career male Marines do not have significantly different mean values for entry age.

Table 8. Enlisted Career Male Demographics by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Race/Ethnic				.5620
White	602	71.26	28.74	
Black	132	77.27	22.73	
Hispanic	91	73.63	26.37	
Other	60	73.33	26.67	
Family Status				.3455
SND	137	67.88	32.12	
SWD	83	71.08	28.92	
MNDSN	39	66.67	33.33	
MWDSN	268	75.37	24.63	
MNDSW	109	67.89	32.11	
MWDSW	249	75.50	24.50	
AFQT				.2461
AFQT12	413	69.98	30.02	
AFQT3A	246	76.02	23.98	
AFQTB3A	205	72.20	27.80	
Education				.1345
SOMECELL	269	69.14	30.86	
No College	616	74.03	25.97	
Type of Housing				.0591
Military	395	75.70	24.30	
Civilian	490	70.00	30.00	
MOS				.0292
Combat Arms	103	77.67	22.33	
Combat Support	372	75.81	24.19	
Combat Service	410	68.29	31.71	
Pay Grade				
E1-E3				
E4-E7	885	72.54	27.46	
Years of Service	885	8.43	6.96	.0001
Entry Age	885	19.88	19.80	.6302

Source: Author

Table 9 shows that the percentage of stayers is significantly higher for Enlisted Career Male Marines who reported that they were searching for a job ($p<.01$). Stayers have significantly lower mean values for their perceptions about finding a good civilian job ($p<.01$), but do not have significantly different mean values for the perceived marketability of their skills. Stayers have significantly higher mean values for most of the satisfaction variables ($p<.01$ or $p<.05$), but do not have significantly different mean values for satisfaction with their command's

response to racial, gender or religious discrimination. Stayers have higher mean values for satisfaction with pay and benefits, but only satisfaction with total pay, basic pay, and educational benefits are significant ($p<.01$ or $p<.05$). Table 9 also shows that stayers/leavers do not have significantly different mean values for their opinions about the frequency of “picking up the load” due to understaffing in their units.

Table 9. Enlisted Career Male Attitude/Perceptions by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Civilian Employment Perceptions				
ESRCH				.0001
Yes (1)	438	63.93	36.07	
No (0)	447	80.98	19.02	
ESKILLS	885	3.23	3.29	.3574
EPROB	885	8.23	8.65	.0043
Satisfaction with Leadership and Morale				
LMODEL	885	3.08	2.89	.0117
LINNOV	885	3.12	3.00	.0541
LEXPECT	885	3.14	3.00	.0228
LFDBK	885	2.91	2.80	.0902
LFAIR	885	3.03	2.87	.0177
LCOHER	885	3.16	2.94	.0016
LSUBBOR	885	3.11	2.93	.0114
LSUPP	885	3.13	2.97	.0119
LLEARN	885	3.17	3.06	.0608
LRESOU	885	3.16	3.00	.0105
LOPENU	885	2.97	2.82	.0308
LCOMM	885	3.05	2.90	.0409
LTECH	885	3.22	3.07	.0118
LREADY	885	3.22	3.06	.0084
LGOALS	885	3.16	2.97	.0030
LINPUT	885	3.17	3.06	.1075
LFOCUS	885	3.03	2.83	.0008
LRECOG	885	2.89	2.74	.0209
LXTRNG	885	2.84	2.71	.0565
LREWRD	885	2.77	2.56	.0027
LOOPENP	885	3.04	2.80	.0002
LMLEAD	885	3.41	3.25	.0101
SMORAL	885	3.05	2.79	.0001
SOWNUP	885	3.36	3.22	.0466
Pay and Benefits				
BTOTPAY	885	2.43	2.30	.0306
BBASPAY	885	2.39	2.20	.0017
BSLPAYAV	885	2.27	2.20	.3775
BPCS	885	2.63	2.55	.2485
BBAH	885	2.39	2.33	.3865
BRETC	885	2.03	1.96	.3301
BMWWR	885	2.60	2.62	.7755
BEDUC	885	3.17	3.05	.0637

Table 9. (Continued)

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Health Benefits				
BMEDAV	885	3.13	2.99	.0466
BMEDQ	885	2.86	2.69	.0089
BDENTAL	885	3.18	3.08	.1089
Current Job				
JRESP	885	3.35	3.12	.0006
JCURR	885	3.11	2.85	.0004
JCHAL	885	3.27	3.00	.0001
JMOS	885	3.12	2.85	.0001
JAUTH	885	3.16	2.98	.0133
JCONTRIB	885	3.70	3.52	.0010
CASIGN	885	2.80	2.53	.0001
JHOURS	885	2.83	2.75	.2501
Discrimination				
SGENDER	885	3.97	3.86	.2301
SRACE	885	3.98	3.93	.5757
SRELIG	885	4.40	4.33	.3775
Future Career Expectations				
CDEV	885	3.05	2.75	.0001
CADVOP	885	2.95	2.75	.0041
CSECUR	885	3.24	3.13	.0828
Work Equity				
JUSTAFF	885	2.40	2.34	.4035
JWKFAIR	885	3.42	3.25	.0370

Source: Author

4. Officer Junior Grade Males

Of the 332 junior grade male Marine officers, 85 percent are stayers. Table 10 shows that the stay/leave decision differs significantly by family status ($p < .05$) and type of housing ($p < .10$) but does not differ significantly by race/ethnic group or MOS for the officer junior grade sample. Junior grade male officers who are married with dependents are the largest family status group and they have the largest percentage of stayers (90.53). Single junior grade male officers have more stayers (84.34%) than junior grade male officers who are married but do not have dependents (76.25). Table 10 also shows that stayers and leavers do not have significantly different mean values for YOS or entry age.

Table 10. Officer Junior Grade Male Demographics by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Race/Ethnic				.1020
Minority	63	92.06	7.94	
Non-minority	269	84.01	15.99	
Family Status				.0106
Single	83	84.34	15.66	
MND	80	76.25	23.75	
MWD	169	90.53	9.47	
Type of Housing				.0004
Military	117	94.87	5.13	
Civilian	215	80.47	19.53	
MOS				.3872
Combat Arms	67	82.09	17.91	
Combat Support	194	85.05	14.95	
Combat Service	71	90.14	9.86	
Commissioning Source				.5309
USNA	44	88.64	11.36	
Other	288	85.07	14.93	
Years of Service	332	7.23	6.95	.1866
Entry Age	332	22.48	22.60	.6938

Source: Author

Table 11 shows that the percentage of stayers is significantly lower for officer junior grade male Marines who reported that they were searching for a job ($p < .01$), compared to those who were not. Stayers have significantly lower mean values for their perceptions about finding a good civilian job and the perceived marketability of their skills. Stayers/leavers do not have significantly different mean values for most of the satisfaction variables. Stayers do have significantly higher mean values for satisfaction with specific current job characteristics including level of responsibility, job challenge and extent to which current job is within primary MOS. Table 11 also shows that stayers/leavers do not have significantly different mean values for their opinions about the frequency of “picking up the load” due to understaffing in their units and unfairness of their seniors’ work assignment.

Table 11. Officer Junior Grade Male Attitude/Perceptions by Stay vs. Leave

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
Civilian Employment Perceptions				
ESRCH				.0001
Yes (1)	103	65.05	34.95	
No (0)	229	94.76	5.24	
ESKILLS	332	3.53	3.79	.0009
EPROB	332	8.87	9.42	.0002
Satisfaction with Leadership and Moral				
LMODEL	332	3.42	3.39	.8481
LINNOV	332	3.21	3.18	.8421
LEXPECT	332	3.15	3.00	.2310
LFDBK	332	2.92	3.02	.4270
LFAIR	332	3.27	3.25	.8589
LCOHER	332	3.37	3.33	.7698
LSUBOR	332	3.37	3.33	.7594
LSUPP	332	3.26	3.21	.6513
LLEARN	332	3.29	3.27	.8253
LRESOU	332	3.25	3.21	.6659
LOPENU	332	3.15	3.19	.8054
LCOMM	332	3.17	3.21	.7425
LTECH	332	3.44	3.35	.3854
LREADY	332	3.33	3.33	.9571
LGOALS	332	3.28	3.27	.8978
LINPUT	332	3.33	3.42	.4893
LFOCUS	332	3.23	3.21	.8228
LRECOG	332	3.20	3.06	.2158
LXTRNG	332	2.83	3.06	.1036
LREWRD	332	3.10	2.96	.2283
LOPENP	332	3.12	3.12	.9664
LMLEAD	332	3.48	3.46	.8370
SMORAL	332	3.42	3.27	.2689
SOWNUP	332	3.79	3.64	.1511
Pay and Benefits				
BTOTPAY	332	2.75	2.71	.6659
BBASPAY	332	2.84	2.83	.9467
BSLPAYAV	332	2.49	2.33	.2639
BPCS	332	2.64	2.64	.9882
BBAH	332	2.48	2.41	.6624
BRETC	332	1.92	1.64	.0454
BMWWR	332	2.73	2.71	.8269
BEDUC	332	2.84	2.79	.6654
Health Benefits				
BMEDAV	332	3.29	3.08	.0919
BMEDQ	332	3.13	3.04	.4941
BDENTAL	332	3.12	3.14	.5737
Current Job				
JRESP	332	3.39	3.02	.0035
JCURR	332	3.24	2.75	.0004
JCHAL	332	3.50	2.94	.0004
JMOS	332	3.02	2.60	.0033
JAUTH	332	3.17	3.00	.2212
JCONTRIB	332	3.62	3.60	.8119

Table 11. (Continued)

Variable Name	Number	Stay (% or \bar{X})	Leave (% or \bar{X})	χ^2 or t-test p-value
CASIGN	332	2.76	2.48	.0244
JHOURS	332	2.57	2.50	.6303
Discrimination				
SGENDER	332	4.27	4.37	.4331
SRACE	332	4.14	4.33	.0411
SRELIG	332	4.55	4.58	.7891
Future Career Expectations				
CDEV	332	3.01	2.96	.6529
CADVOP	332	3.22	3.04	.1097
CSECUR	332	3.19	3.16	.8371
Work Equity				
JUSTAFF	332	2.40	2.25	.2999
JWKFAIR	332	3.68	3.58	.5136

Source: Author

E. CHAPTER SUMMARY

Data sources and sample grouping are discussed in this chapter and descriptive statistics are presented. Modifications to eliminate involuntary stayers and leavers and incomplete or missing values limited analysis to four samples: enlisted first-term male, enlisted first-term female, enlisted career male and officer junior grade male.

The percentage of stayers for Marines who mentioned that they were not searching for a civilian job was higher when compared to percentage of Marines who mentioned that they were searching for a civilian job, in all four samples. Although whites are the largest race/ethnicity group, the percentage of Black stayers is the largest in the enlisted first term male and female samples and the percentage of white stayers is the smallest.

Preliminary analysis gives insight into the relationship between demographics, perceptions of Marines, and stay/leave behavior. However, small sample size and lack of control over other variables limit conclusions based on this preliminary analysis. Chapter V discusses the results of multivariate analysis with a logistic regression function that gives more insight into the effects of the independent variables on the stay/leave decision, controlling for the covariate effects of other independent variables. In descriptive statistics controlling for the mutual effect of independent variables is not possible. The logit function will provide individual beta coefficients of each independent variable that can be compared.

IV. METHODOLOGY AND MODEL SPECIFICATION FOR MULTIVARIATE ANALYSIS

A. OBJECTIVE

The bivariate analyses of Chapter III show that there are significant variations in stay/leave behavior among Marines with different demographic and military background characteristics (the control variables) and that many of the focus variables (perceptual factors) were also significantly associated with differences in retention. However, some important questions remain to be answered: What is the relative importance of these different factors in explaining retention? How does retention respond to changes in these variables? How important is each of the variables in relation to the other influences, and in particular, what is the relative importance of the control and focus variables.

The multivariate analysis that follows has these objectives:

1. to determine the effects of each of the focus variables on retention while controlling for the demographic and military variables,
2. to judge the relative importance of each of the variables in the model and to investigate the role of groups of influences,
3. to determine how much of the variation in actual retention behavior can be explained by the variables included in the model.

B. METHODOLOGY

The logistic regression model expresses a qualitative dependent variable as a function of one or more independent variables. In this study, logistic regression is used for multivariate analysis with a binary dependent variable that takes on a value of 1 (success) if a Marine stays on active duty voluntarily until two years after the survey date and a value of 0 otherwise to estimate the predicted probability of success (stay=1).

The logistic regression approach estimates the probability of success/failure with a model of the relationship between the probability of success/failure and the explanatory variables with the logit function using a

maximum likelihood estimation technique. The linear regression model for the stay/leave decision can be shown as:

$$\text{Log } (p/(1-p)) = \text{intercept} + b_1 X_1 + b_2 X_2 + \dots + b_k X_k, \quad (1)$$

where P is the probability that Marine stays on active duty, b_1, b_2, \dots, b_k are the estimates of the model parameters, and X_1, X_2, \dots, X_k are independent variables.

The equation for the predicted probability of success (staying) then becomes

$$P(p=1|X) = e^{\text{intercept} + b_1 X_1 + b_2 X_2 + \dots + b_k X_k} / (1 + e^{\text{intercept} + b_1 X_1 + b_2 X_2 + \dots + b_k X_k}). \quad (2)$$

Models are estimated for four subgroups of the data defined by officer/enlisted status, seniority and gender. Due to the limited size of some subgroups, only enlisted first-term male, enlisted first-term female, enlisted career male, and officer junior grade male samples are analyzed with multivariate retention models.

In order to eliminate covariation of responses to survey questionnaire variables that could result in unreliable tests of significance for parameter estimates, a factor analysis technique is used to reduce the number of variables in the model. This results in the construction of standardized factor scores that are subsequently used as explanatory variables measuring several dimensions of satisfaction: leadership and morale, pay and benefits, health benefits, current job, discrimination, future career expectations, and work equity. Principal iterated factors with varimax rotation are used for extracting factors. The factor loadings for the variables are discussed in the model specification section of this chapter.

C. THEORETICAL RETENTION MODEL

A model for predicting personal retention behavior requires reliance on often unobservable individual information. Findings in the retention literature give evidence that several major predictive and explanatory variable groups are related to retention behavior. These include such influences as personal and military background, family status, pay and benefits, civilian opportunities, satisfaction with job and specific aspects of life in the military. The literature suggests this theoretical retention function:

Retention=f (personal and military background, family status, pay and benefits, civilian opportunities, satisfaction with job and specific aspects of life in the military).

As explained in Chapter 1, actual stay/leave behavior was sought as the measure of retention for this study, rather than intention to stay. The data were limited to those respondents who were eligible to make a stay/leave decision within 24 months of the retention survey date. Survey responses are snapshots of the intentions, perceptions, personal characteristics, and values of respondents that are subject to change over time and, for this reason, the dependent variable was selected to show behavior that reflects survey responses within 24 months of the stay/leave determination. While a longer observation period would have yielded more useful observations for some small groups, events such as the slow down in economic growth, authorization of higher pay and benefits for military personnel, the terrorist attacks on September 11th and subsequent authorization of stop-loss procedures are specific events that have occurred since 1999 and may change stay-leave decision parameters of respondents if a longer period between the survey and the stay/leave decision were considered.

Although military retention studies generally use a binary choice (stay or leave) as the dependent variable, the definition may vary somewhat from study to study. Some enlisted retention studies deal explicitly with contract extensions, with some treating them as a separate category and others including them in the stayer group, others treating them as a separate category, and still others limiting the sample to those who reenlist or leave. Quester and Adedeji (1991) and Moore et al. (1996) use a binary choice, treating enlistees who extended their contract as stayers. In this thesis, extensions could not be distinguished from reenlistments and both groups were considered stayers.

D. MODEL SPECIFICATION

Control variables include race and ethnicity, family status, AFQT SCORE score, living in military housing, primary MOS, commissioning source, and YOS. Focus variables include responses to survey questionnaire items about the

probability of finding a good civilian job, searching for a civilian job, whether skills gained in USMC are transferable to civilian job, and several satisfaction dimensions, including satisfaction with leadership and morale, pay and benefits, health benefits, current job characteristics, discrimination, future expectations, and work equity dimensions.

Factor analysis was used to identify the satisfaction dimensions among the perceptive (focus) variables of the responses to the retention survey questionnaire items. Table 12 shows the variables that load on each factor and the dimension of satisfaction that each factor represents. Factor loadings of these variables and communalities are presented in Appendix C.

Table 12. Rotated Factor Pattern of Questionnaire Items

	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7
Composite Dimensions	Leadership and Morale	Pay and Benefits	Health Benefits	Current Job	Discrimination	Future Career Expectations	Work Equity
Variables	LMODEL LINNOV LEXPECT LFDBK LFAIR LCOHER LSUBOR LSUPP LLEARN LRESOU LOPENU LCOMM LTECH LREADY LGOALS LINPUT LFOCUS LRECOG LXTRNG LREWRD LOPENP LMLEAD SMORAL SOWNUP	BTOTPAY BBASPAY BSLPAYAV BPCS BBAH BRETC BMWWR BEDUC	BMEDAV BMEDQ BDENTAL	JRESP JCURR JCHAL JMOS JAUTH JCONTRIB CASIGN JHOURS	SGENDER SRACE SRELIG	CDEV CADVOP CSECUR	JUSTAFF JWKFAIR

Source: Author

The differences in the sample characteristics and small sample size cause slight variation in the loading of questionnaire items in factor analysis. In the enlisted first term female sample, questionnaire items about future career expectations load on several different factors. In order to simplify interpretations these three variables, opportunities for career development (training, education) in USMC (CDEV), opportunities for promotion and advancement in USMC (CADVOP), job security in USMC (CSECUR), are included in model as individual explanatory variables.

Table 13 shows the expected signs of explanatory variables. The retention literature and the author's reasoning and experience sometimes indicated a one-tail test, while the expected direction of the relationship between some explanatory variables and the dependent variable was sometimes unclear and a two-tail test was used.

Table 13. Hypothesized Effects of the Explanatory Variables

Variable Name	Expected Sign				Explanations	
	<u>Enlisted</u>		<u>Officer</u>			
	First Term	Career	Junior Grade			
	Male N=3547	Female N=320	Male N=864	Male N=332		
Personal Characteristics						
<u>Race/Ethnicity</u>						
White	Base	Base	Base	N/A		
Black	+	+	+	N/A		
Hispanic	+	+	+	N/A		
Other_RE	+	+	+	N/A		
Minority	N/A	N/A	N/A	+	Compared to non-minority	
<u>Family Status</u>						
SND	Base	N/A	Base	N/A		
SWD	+	N/A	+	N/A		
MNDSN	+	N/A	+	N/A		
MWDSN	+	N/A	+	N/A		
MNDSW	+	N/A	+	N/A		
MWDSW	+	N/A	+	N/A		
Single	N/A	Base	N/A	Base		
MND	N/A	+	N/A	+		
MWD	N/A	+	N/A	+		
<u>AFQT Score</u>						
AFQT12	-	-	-	N/A		
AFQT3A	-	-	-	N/A		
AFQTB3A	Base	Base	Base	N/A		
SOMECOLL	-	-	-	N/A	Compared to less than college	
LIVINMILHOU	+	+	+	+	Compared to Civilian Housing	

Table 13. (Continued)

Variable Name	Expected Sign					Explanations			
	<u>Enlisted</u>		<u>Officer</u>		<u>Junior Grade</u>				
	First Term Male N=3547	Career Female N=320	Male N=864	Male N=332					
Military Background									
MOS Groupings									
Combat Arms	Base	N/A	Base	Base					
Combat Support	+	Base	+	+					
Combat Service	+	+	+	+					
Commissioning Source									
USNA	N/A	N/A	N/A	+					
Others	N/A	N/A	N/A	Base					
YOS	+	+	+	+					
Satisfaction Factors									
LeadMor	+	+	+	+					
PayBen	+	+	+	+					
HealthBen	+	+	+	+					
CurrJob	+	+	+	+					
Discrimination	+	+	+	+					
FutCrExp	+	+	+	+					
WorkEq	+	+	+	+					
Civilian Employment Opportunities									
Eprob	-	-	-	-					
Esrch	-	-	-	-					
Eskills	-	-	-	-					
CDEV	N/A	+	N/A	N/A					
CADVOP	N/A	+	N/A	N/A					
CSECUR	N/A	+	N/A	N/A					

Source: Author

Race and ethnicity is a common control variable in military retention studies with dummy variables used for each category and Whites treated as the base case. Minorities are expected to be more likely to stay voluntarily compared to Whites because of more strict rules on discrimination than on the civilian sector. Quester and Adedeji (1991) find a positive effect for being Black on the reenlistment decision. Moore et al. (1996) find negative effect of being Black or Hispanic on retention, although their race/ethnicity results are not significant. North et al. (1995) find slightly lower survival rates for Blacks, Hispanics and other minorities in survival from 0 to 7 YCS model, but point out no significant difference for race/ethnicity in survival from 7 to 11 YCS model after controlling for the differences in officer characteristics, occupation, and commissioning source. The preliminary analysis of the data supports findings of Quester and

Adedeji (1991). Therefore, the expected sign of the dummy variables for race/ethnicity are positive and will be tested for significance with one tail-tests.

While Quester and Adedeji (1991) and Moore et al. (1996) find a positive effect for marriage and number of dependents on enlisted retention behavior, Lee and Maurer (1999) find mixed effects of family status. Family status consists of dummy variables for three facets; being married, having dependents and having a working spouse. All these facets are likely to increase required time for family and decrease the available time for extra working hours. However, these facets also may limit individual decisions of Marines about leaving because of concerns for economic security of the family, making the leaving decision more difficult. Therefore, the expected sign of the dummy variables for family status are positive as Lee and Maurer (1999) suggest and will be tested for significance with one tail-tests.

Quester and Adedeji (1991) and Moore et al. (1996) find a negative effect for high AFQT score on enlisted retention behavior. Because the AFQT SCORE is used a predictive proxy of cognitive abilities, Marines who have high AFQT scores have higher opportunity of finding a good civilian job. Quester and Adedeji (1991) argue that the difference decreases with eligibility of SRB programs. The expected signs of the dummy variables for AFQT score categories are negative and will be tested for significance with one tail-tests.

North et al. (1995) find that occupational type has a significant effect on retention. This current study uses three major MOS categories to control for differences in occupation. The marketability of occupations in combat support and combat service are higher than for combat arms. However, Marines who are in combat arms may have high satisfaction with job due to self selection. It is expected that Marines in combat service and combat support are more likely to leave than those in combat arms and these variables will be tested for significance with one tail-tests.

North et al. (1995) find that officers commissioned through USNA, NROTC, and ECP are more likely to survive to 7 YCS than those commissioned

through PLC, MECEP, OCC or MCP. This study uses only two categories for commissioning source, USNA and others. It is expected that USNA graduates will be more likely to stay than officers from other commissioning sources because USNA provides the longest military education prior to the entry and these variables will be tested for significance with one tail-tests.

Marines who have more years of service are likely to have more experience in their occupations and that should ease doing their jobs and they are also more likely to be accustomed to life in the military. Another variable that could increase satisfaction with life in the military is type of housing. Living in military housing increases the closeness of the relationships with the Marine community. Therefore, the expected signs of these variables are positive.

The literature implies positive effects on retention for job satisfaction and satisfaction with specific aspects of the life in the military. Additionally, the scale of the response format of the questionnaire items about satisfaction is designed so that high values reflect greater satisfaction and should lead to greater retention. Therefore, composite dimensions of all satisfaction variables are expected to influence the stay decision positively and these variables will be tested for significance with one-tail tests.

Civilian employment opportunities represent questionnaire items that ask about perceived opportunities rather than actual opportunities, except for searching for a civilian job. If one thinks he or she has a good opportunity in the civilian sector then he or she is more likely to leave. Searching for a civilian job implies an intention to leave. Therefore, the expected signs of these three variables measuring external opportunities are negative and will be tested for significance with one-tail tests.

E. CHAPTER SUMMARY

The logit function is used for multivariate regression analysis because it predicts a binary dependent variable accurately. Explanatory variables include personal and military background variables, responses to questionnaire items about civilian employment opportunities, and responses to questionnaire items

about satisfaction with specific aspects of life in the military. Factor analysis is used to identify dimensions among the attitudinal variables.

The retention literature gives evidence of how major predictive and explanatory variable groups are expected to be related to retention behavior. However, sample size limits the variables that can be included in specific models.

The expected signs of the composite dimensions of the satisfaction variables, race and ethnicity, family status, USNA, YOS, Primary MOS, and type of housing are positive. The expected signs of civilian employment opportunities, and AFQT score are negative.

THIS PAGE INTENTIONALLY LEFT BLANK

V. RESULTS OF MULTIVARIATE MODELS

A. RESULTS OF ENLISTED MODELS

1. Enlisted First Term Male Model

Of the 3,547 enlisted male Marines serving in their first term included in the logistic regression model, 32 percent are stayers. Table 14 presents model fit statistics for the enlisted first term male model. The pseudo R-square for the enlisted first term male model is only 0.0942 but the max-rescaled R-square for the model is 0.1317. Because the max-rescaled R-square has a maximum value of one, it gives a measure of the explanatory power of the model that is similar to the R-square of OLS regression. The chi-square value of the likelihood ratio is useful for examining the null hypothesis of “All estimates of the Beta coefficients for the independent variables in the model are zero.” Rejecting this null hypothesis indicates that at least one of the Beta coefficients for the independent variables in the model is not zero. The chi-square value of the likelihood ratio for this model presented in Table 14 is 350.9999 with 24 degrees of freedom and the p-value is .0001, giving enough evidence to reject the null hypothesis, and conclude that at least one of the Beta coefficients for the independent variables in the model is not zero.

Table 14. Model Fit Statistics of Enlisted First Term Male Model

-2 Log L	Intercept Only	Intercept and Covariates	
	4455.951	4104.952	
Pseudo R-Square	.0942	Max-rescaled R-Square	.1317
Testing Global Null Hypothesis: Beta=0			
Likelihood Ratio	Chi-Square 350.9999	DF 24	Pr>ChiSq .0001

Source: Author

Another useful tool for examining the goodness of fit in a logistic regression model is a classification table. The classification table for the cut-off probability level of 32 percent is presented in Table 15. This cut-off probability is

the criterion for classifying an observation as a stayer or a leaver. An individual's characteristics are substituted into the equation for the model and if the resulting probability of staying is greater than the proportion of actual stayers, that individual is classified as a stayer. The actual proportion of stayers for first term male enlistees is 32%. According to the classification table results, the model correctly classifies 63.18% of the sample, correctly predicts 63.1% of the stayers and 63.2% of the leavers. Although the pseudo R-square for the model is only 0.0942, from the discussion above one can conclude that model fits the data well in comparison with logistic regression retention models encountered in the literature.

Table 15. Classification Table Validity of Enlisted First Term Male Model

Actual	Predicted		Total
	Stayers	Leavers	
Stayers	63.1% (720)	36.9% (421)	1141
Leavers	36.8% (885)	63.2% (1521)	2406
Total	1605	1942	3547

Actual percent remaining on active duty: 32.17%

Percent correctly classified by model: 63.18%

Source: Author

The logistic regression software results show the significance level for a two tailed test. When a one tail test is specified, the appropriate p-value is one half of the calculated significance level that is presented in Tables of Maximum Likelihood Estimates. Based on evidence in the literature and given the reasoning presented in the model specification section, the significance of variables is tested with one tail tests.

According to the estimated results of the enlisted first term male model presented in Table 16, all of the focus variables are significant at the 1% level except marketability of skills gained in USMC (ESKILLS), which is significant at the 5% level (one tail test). The signs of the independent variables are the same as the expected signs.

Table 16. Maximum Likelihood Estimates of Enlisted First Term Male Model

Variable	Estimate	Chi-Square	Pr>ChiSq
INTERCEPT	-0.8823	19.6689	<.0001
YOS ***	0.1216	9.9421	0.0016
EPROB ***	-0.0592	10.2945	0.0013
ESKILLS **	-0.0899	3.3267	0.0682
ESRCH ***	-0.5391	47.0515	<.0001
AFQT12	-0.0500	0.2686	0.6043
AFQT3A	0.0719	0.4792	0.4888
BLACK ***	0.8257	44.7042	<.0001
HISPANIC ***	0.2776	7.0778	0.0078
OTHER RE	0.1674	1.2524	0.2631
SWD	0.2914	2.3500	0.1253
MNDSN ***	0.5214	10.0057	0.0016
MWDSN ***	0.6638	29.9911	<.0001
MNDSW ***	0.5102	19.1453	<.0001
MWDSW ***	0.4231	10.8073	0.0010
LIVINMILHOU ***	0.2220	7.9194	0.0049
COMBAT SUPPORT ***	0.3952	10.9624	0.0009
COMBAT SERVICE ***	0.3143	7.2258	0.0072
LEADMOR ***	0.1712	16.9663	<.0001
PAYBEN ***	0.1402	10.4394	0.0012
CURRJOB ***	0.2719	35.0078	<.0001
HEALTHBEN ***	0.1669	14.2332	0.0002
DISCRIMINATION ***	0.1128	5.9040	0.0151
WORKEQ ***	-0.1315	6.7886	0.0092
FUTCREXP ***	0.2307	20.0190	<.0001

*** Significant at one percent level

** Significant at five percent level

* Significant at ten percent level

(Significance of variables are tested with one tail test)

Source: Author

In the logistic regression model, the estimated beta coefficients are difficult to interpret. The partial effect of each variable is not constant, rather it varies with that variable. While, the significance of the independent variables and their signs give insight into the explanation of the dependent variable by the independent variables, it is necessary to show how changes in the independent variables affect the dependent variable. The partial effects of each variable, holding the other variables constant, can be calculated by comparing the probability of staying for a typical or base case individual with the probability of staying for an individual with a one unit larger value for the variable of interest. For the base case or typical individual, this study uses average values of the continuous or ordinal independent variables and a value of zero for dummy variables and

standardized factor scores. The results of the calculated partial effects are presented in Table 17.

Table 17. Partial Effects of Independent Variables of Enlisted First Term Male Model

Variable	Partial Effect
YOS ***	0.02151
EPROB ***	-0.00995
ESKILLS **	-0.01500
ESRCH ***	-0.07845
AFQT12	-0.00844
AFQT3A	0.01255
BLACK ***	0.17136
HISPANIC ***	0.05114
OTHER RE	0.02996
SWD	0.05386
MNDSN ***	0.10180
MWDSN ***	0.13360
MNDSW ***	0.09937
MWDSW ***	0.08077
LIVINMILHOU ***	0.04032
COMBAT SUPPORT ***	0.07494
COMBAT SERVICE ***	0.05844
LEADMOR ***	0.03068
PAYBEN ***	0.02492
CURRJOB ***	0.05002
HEALTHBEN ***	0.02988
DISCRIMINATION ***	0.01990
WORKEQ ***	-0.02167
FUTCREXP ***	0.04200

Base case probability: 0.21903

Source: Author

Increasing the probability of finding a good job by 10% decreases a first term enlisted Marine's probability of staying by .0099. An increase by one category on the rating scale regarding the marketability of skills gained in USMC, decreases a first term enlisted Marine's probability of staying by .015. First term enlisted Marines who search for a job are less likely to stay on active duty by 7.8 percentage points when compared to those who do not search for a job.

The partial effects of six of the satisfaction variables (leadership and morale, pay and benefits, health benefits, current job, command's response to discrimination (DISCRIMINATION), and future career expectations) range from .0199 to .05. The largest partial effect in this group is for satisfaction with current job and the lowest is for satisfaction with the command's response to

discrimination. The remaining satisfaction variable, work equity, has a negative partial effect of -.02167.

An increase of one year in YOS increases a first term enlisted Marine's probability of staying by .0215. Being Black or Hispanic increases the probability of staying for first term enlisted Marines by .1713 and .0511 when compared to Whites, respectively. Although the "other" race/ethnicity dummy variable also has a positive effect on the stay/leave decision, the significance of this variable indicates no difference when compared to Whites.

The family status dummy variables are all significant at the 1% level, except single with dependents (SWD) when compared to those Marines who are not married, do not have any dependents or a working spouse (SND, the base case). According to table 17, the other four family status categories; MNDSN, MWDSN, MNDSW, and MWDSW increases the probability of staying for first term enlisted Marines by .1018, .1336, .0994, and .0807 compared to the base case, respectively.

Living in military housing increases the probability of staying for a first term enlisted Marine by .0403 compared with those who do not live in military housing. Having a primary MOS in combat support or combat service increases the probability of staying for a first term enlisted Marine by .0749, and .0584, respectively.

Restricted model tests can be used to determine whether a group of related variables are jointly significant in explaining the dependent variable. The null hypothesis for this test is all the tested variables in the group have Beta coefficients equal to zero. Table 18 shows that joint tests of the family status dummy variables, the race/ethnicity dummy variables, and the satisfaction dimension variables are jointly significant at the 1% level. However, the dummy variables for AFQT score are not jointly significant.

Table 18. Linear Hypotheses Testing Results of Enlisted First Term Male Model

Joint significance test of	Wald Chi-Square	DF	Pr > ChiSq
Race/Ethnicity dummy variables	45.9611	3	<.0001
Family Status dummy variables	47.9650	5	<.0001
AFQT score dummy variables	1.6662	2	0.4347
Satisfaction dimension variables	101.1270	7	<.0001

Source: Author

As discussed in the model specification section, data and sample size limit the variables that can be included in the retention model. Entry age, length of initial contract, prior service, military basic pay, eligibility of SRB, eligibility of incentive pays, unemployment rate, equivalent civilian pay are examples of variables that could not be included due to data type or sample size. This is a potential source of omitted variable bias. Additionally, the dummy variables for AFQT score are not jointly significant giving a signal of possible irrelevant variable inefficiencies. However, the literature supports the relevance of high AFQT scores to retention behavior and these variables were included in the model on the basis of theoretical importance.

Multicollinearity in the model was addressed with factor analysis as described in chapter 3. Variation Inflation (VIF) tests were performed and indicated that collinearity is not a severe problem in this model.

2. First Term Female Model

Of the 320 enlisted female Marines serving in their first term included in the logistic regression model, almost 40 percent are stayers. Table 19 presents model fit statistics for the enlisted first term female model. The pseudo R-square for the enlisted first term female model is 0.1405 and the max-rescaled R-square for the model is 0.1902 as shown in Table 19. The chi-square value of likelihood ratio is 48.4366 with 22 degrees of freedom and the p-value is .0009 for the enlisted first term female sample, giving enough evidence to reject the null hypothesis, and conclude that at least one of the Beta coefficients for the independent variables in the model is not zero.

Table 19. Model Fit Statistics of Enlisted First Term Female Model

-2 Log L	Intercept Only	Intercept and Covariates
	429.053	380.617
Pseudo R-Square	.1405	Max-rescaled R-Square .1902
Testing Global Null Hypothesis: Beta=0		
Likelihood Ratio	Chi-Square 48.4366	DF 22 Pr>ChiSq .0009

Source: Author

The classification table for the cut-off probability level of 40 percent is presented in Table 20. According to the classification table results, the model correctly classifies 56.3% of the sample, correctly predicts 52.4% of the stayers and 58.8% of the leavers. According to the discussion above, one can conclude that model fits the data fairly well.

Table 20. Classification Table Validity of Enlisted First Term Female Model

Actual	Predicted		Total
	Stayers	Leavers	
Stayers	52.4% (66)	47.6% (60)	126
Leavers	41.2% (80)	58.8% (114)	194
Total	146	174	320

Actual percent remaining on active duty: 39.37%

Percent correctly classified by model: 56.3%

Source: Author

According to the estimated results of the enlisted first term female model presented in Table 21, only the probability of finding a good civilian job ($p<.05$), searching for a civilian job ($p<.05$), and satisfaction with pay and benefits are significant among the focus variables. YOS ($p<.05$), AFQT score dummy variables ($p<.05$ or $p<.01$), being Black ($p<.01$), and married with no dependents ($p<.05$) are significant variables among the personal and background variables.

The signs of the significant independent variables are as expected except for the AFQT score dummy variables and married with no dependents. The signs of these variables may be specific to women. Being female may result in an interaction between economic security and AFQT score dummy variables and family status. This is not clear from the findings of this model. Further research is needed to clarify the reason of the sign change.

Table 21. Maximum Likelihood Estimates of Enlisted First Term Female Model

Variable	Estimate	Chi-Square	Pr>ChiSq
INTERCEPT	-1.6009	3.2136	0.0730
YOS **	0.3223	5.0023	0.0253
EPROB **	-0.1487	5.0446	0.0247
ESKILLS	0.1774	1.1153	0.2909
CDEV	0.1881	1.0070	0.3156
CADVOP	0.00197	0.0002	0.9897
CSECUR	-0.0693	0.1571	0.6919
ESRCH **	-0.5281	3.7553	0.0526
AFQT12 **	0.7829	4.1113	0.0426
AFQT3A ***	0.9340	6.4517	0.0111
BLACK ***	1.2546	12.8405	0.0003
HISPANIC	0.3848	1.2102	0.2713
OTHER RE	0.5729	1.5681	0.2105
MND **	-0.6631	4.0912	0.0431
MWD	-0.4256	1.6384	0.2005
LIMILHOU	-0.2862	0.9144	0.3390
SERVICE	0.0240	0.0076	0.9307
LeadMor	0.1593	1.2325	0.2669
PayBen ***	0.4282	7.0053	0.0081
CurrJob	0.1346	0.7573	0.3842
HealthBen	0.00270	0.0003	0.9852
Disc	0.1307	0.6383	0.4243
WORKEQ	-0.1727	1.1878	0.2758

*** Significant at one percent level

** Significant at five percent level

* Significant at ten percent level

(Significance of variables are tested with one tail test)

Source: Author

The results of the calculated partial effects are presented in Table 22. Increasing the probability of finding a good job by 10% decreases a first term enlisted female Marine's probability of staying by .029. First term enlisted female Marines who search for a job are less likely to stay on active duty by 9.4 percentage points when compared to those who do not search for a job.

The partial effect of satisfaction with pay and benefits is .094. This indicates that increasing satisfaction with pay and benefits by one standard deviation in the attitude scales would increase the probability of staying by 9.4% for first term female Marines.

An increase of one year in YOS increases a first term enlisted female Marine's probability of staying by .0695. According to the partial effects presented in Table 22, having an AFQT score in the category of I, II or IIIA increases the probability of staying for an enlisted first term female Marine when

compared to those who have lower scores. Being Black increases the probability of staying for first term female by .2973 when compared to Whites. Although other race/ethnicity dummy variables also have positive effects on the stay/leave decision, the significance of these variables indicates no difference when compared to Whites.

Table 22. Partial Effects of Independent Variables of Enlisted First Term Female Model

Variable	Partial Effect
YOS **	0.06950
EPROB **	-0.02906
ESKILLS	0.03724
CDEV	0.03957
CADVOP	0.00040
CSECUR	-0.01380
ESRCH **	-0.09385
AFQT12 **	0.18009
AFQT3A ***	0.21779
BLACK ***	0.29726
HISPANIC	0.08387
OTHER RE	0.12850
MND **	-0.11359
MWD	-0.07771
LIMILHOU	-0.05416
SERVICE	0.00488
LeadMor	0.03332
PayBen ***	0.09400
CurrJob	0.02802
HealthBen	0.00055
Disc	0.02718
WORKEQ	-0.03359

Base case probability: 0.28165

Source: Author

Among the family status dummy variables, only married with no dependents is significant at the 5% level, decreasing the probability of staying for a first term female Marine by .1136 when compared to those Marines who are not married, and do not have any dependents.

Table 23 shows that the group of race/ethnicity dummy variables ($p < .01$), and the group of AFQT score dummy variables ($p < .05$) are each jointly significant. However, the group of dummy variables for family status, satisfaction with future career opportunities and the satisfaction dimensions are not jointly significant in this model.

Table 23. Linear Hypotheses Testing Results of Enlisted First Term Female Model

Joint significance test of	Wald Chi-Square	DF	Pr > ChiSq
Race/Ethnicity dummy variables	12.9948	3	0.0046
Family Status dummy variables	4.5863	2	0.1009
AFQT score dummy variables	6.6653	2	0.0357
Satisfaction dimension variables	9.1413	6	0.1658
Satisfaction with future career expectations	1.1830	3	0.7571

Source: Author

This model also has possible omitted variable bias, due to small sample size and data type. Additionally, the dummy variables for Family status, satisfaction dimension and satisfaction with future career expectation variables are not jointly significant, signaling the possibility of irrelevant variable inefficiency. However, the relevance of these variables to retention behavior is supported in the literature and these variables were retained in the model for this reason.

Multicollinearity in this model was also addressed with factor analysis. Variation Inflation (VIF) tests also indicated that collinearity is not a severe problem in this model.

3. Results of Enlisted Career Male Model

Of the 864 enlisted male Marines serving in their second or subsequent term included in logistic regression model, 70 percent are stayers. Table 24 presents model fit statistics for the enlisted career male model. The pseudo R-square for the enlisted career male model is 0.1541 and the max-rescaled R-square for the model is 0.2224, the highest among the enlisted models. The chi-square value of likelihood ratio is 144.6414 with 24 degrees of freedom and the p-value is .0001 for the enlisted career male sample, giving enough evidence to reject the null hypothesis, and conclude that at least one of the Beta coefficients for the independent variables in the model is not zero.

Table 24. Model Fit Statistics of Enlisted Career Male Model

-2 Log L	Intercept Only	Intercept and Covariates
	1020.975	876.334
Pseudo R-Square	.1541	Max-rescaled R-Square
Testing Global Null Hypothesis: Beta=0		
Likelihood Ratio	Chi-Square 144.6414	DF 24 Pr>ChiSq .0001 Source: Author

The classification table for the cut-off probability level of 70 percent is presented in Table 25. According to the classification table results, the model correctly classifies 66.66% of the sample, correctly predicts 67.5% of the stayers and 64.6% of the leavers. Although the pseudo R-square for the model is only 0.1541, from the discussion above one can conclude that model fits the data fairly well.

Table 25. Classification Table Validity of Enlisted Career Male Model

Actual	Predicted		Total
	Stayers	Leavers	
Stayers	67.5% (421)	32.5% (203)	624
Leavers	35.4% (85)	64.6% (155)	240
Total	506	358	864

Actual percent remaining on active duty: 70.50%

Percent correctly classified by model: 66.66%

Source: Author

According to the estimated results of the enlisted career male model presented in Table 26, only the probability of finding a good civilian job ($p<.05$), searching for a civilian job ($p<.01$), and satisfaction with specific current job characteristics and future career expectations are significant among the focus variables. YOS ($p<.01$) is the only significant variable among the personal and background variables. The signs of the significant independent variables are as expected.

Table 26. Maximum Likelihood Estimates of Enlisted Career Male Model

Variable	Estimate	Chi-Square	Pr>ChiSq
Intercept	-0.0470	0.0068	0.9341
YOS ***	0.3530	60.3854	<.0001
EPROB **	-0.0915	2.9536	0.0857
ESKILLS	-0.1523	1.4926	0.2218
ESRCH ***	-0.7187	16.4827	<.0001
AFQT12	-0.1377	0.3919	0.5313
AFQT3A	0.1397	0.3400	0.5598
BLACK	0.2497	0.9170	0.3383
HISPANIC	0.0605	0.0460	0.8301
OTHER RE	0.4341	1.6928	0.1932
SWD	-0.2875	0.7039	0.4015
MNDsn	0.1318	0.0912	0.7627
MWDsn	0.0605	0.0507	0.8219
MNDsw	-0.0710	0.0536	0.8169
MWDsw	0.0595	0.0496	0.8238
LIMILHOU	0.2159	1.3916	0.2381
SUPPORT	-0.0343	0.0113	0.9152
SERVICE	-0.2516	0.6316	0.4268
LeadMor	0.0838	0.9602	0.3271
PayBen	0.1098	1.2994	0.2543
CurrJob ***	0.2654	7.8562	0.0051
HealthBen	0.0393	0.1757	0.6751
Disc	0.00565	0.0035	0.9526
WORKEQ	-0.0721	0.4539	0.5005
FUTCREXP ***	0.3286	9.2379	0.0024

*** Significant at one percent level

** Significant at five percent level

* Significant at ten percent level

(Significance of variables are tested with one tail test)

Source: Author

According to Table 27, increasing the probability of finding a good job by 10% decreases a first term enlisted Marine's probability of staying by .01253. First term enlisted Marines who search for a job are less likely to stay on active duty by 11.97 percentage points when compared to those who do not search for a job.

The partial effects of the two significant satisfaction variables (current job, and future career expectations) are .0321, and .0389 respectively. An increase of one year in YOS increases a first term enlisted Marine's probability of staying by .0414.

Table 27. Partial Effects of Independent Variables of Enlisted Career Male Model

Variable	Partial Effect
YOS ***	0.04141
EPROB **	-0.01253
ESKILLS	-0.02128
ESRCH ***	-0.11974
AFQT12	-0.01914
AFQT3A	0.01766
BLACK	0.03037
HISPANIC	0.00785
OTHER RE	0.04947
SWD	-0.04201
MNDsn	0.01670
MWDsn	0.00786
MNDsw	-0.00966
MWDsw	0.00774
LIMILHOU	0.02657
SUPPORT	-0.00461
SERVICE	-0.03633
LeadMor	0.01080
PayBen	0.01402
CurrJob ***	0.03210
HealthBe	0.00514
Disc	0.00074
WORKEQ	-0.00981
Futcrexp ***	0.03887

Base case probability: 0.84250

Source: Author

Table 28 shows that the satisfaction dimension variables are jointly significant at the 1% level. The dummy variables for race/ethnicity, family status, and AFQT score are not jointly significant for enlisted career model.

Table 28. Linear Hypotheses Testing Results of Enlisted Career Male Model

Joint significance test of	Wald		
	Chi-Square	DF	Pr > ChiSq
Race/Ethnicity dummy variables	2.3403	3	0.5048
Family Status dummy variables	1.4940	5	0.9138
AFQT score dummy variables	1.7828	2	0.4101
Satisfaction dimension variables	20.1603	7	0.0052

Source: Author

As discussed in the model specification section, data and sample size limit the variables that can be included in the retention model. This may cause omitted variable bias. Additionally, the dummy variables for AFQT score are not jointly significant, giving a signal of possible irrelevant variable inefficiency. However, the literature supports the relevance of high AFQT scores to retention behavior and therefore these variables are retained in the model.

Multicollinearity in this model was also addressed with factor analysis. Variation Inflation (VIF) tests indicated that collinearity is not a severe problem in this model.

B. RESULTS OF OFFICER JUNIOR GRADE MALE MODEL

Of the 320 junior grade Marine officers included in the logistic regression model, almost 86 percent are stayers. Table 29 presents model fit statistics for the junior grade male officer model. The pseudo R-square for the model is 0.2573 and the max-rescaled R-square for the model is 0.4575 as shown in Table 29. The chi-square value of likelihood ratio is 98.7452 with 18 degrees of freedom and the p-value is .0001 for the junior grade male officer model, giving enough evidence to reject the null hypothesis, and conclude that at least one of the Beta coefficients for the independent variables in the model is not zero.

Table 29. Model Fit Statistics of Officer Junior Grade Male Model

-2 Log L	Intercept Only	Intercept and Covariates
	274.357	175.612
Pseudo R-Square	.2573	Max-rescaled R-Square
Testing Global Null Hypothesis: Beta=0		
Likelihood Ratio	Chi-Square 98.7452	DF 18 Pr>ChiSq .0001

Source: Author

The classification table for the cut-off probability level of 86 percent is presented in Table 30. According to the classification table results, the model correctly classifies 75.6% of the sample, correctly predicts 52.4% of the stayers and 70.08% of the leavers. Based on the discussion above, one can conclude that model fits the data fairly well.

Table 30. Classification Table Validity of Officer Junior Grade Male Model

Actual	Predicted		Total
	Stayers	Leavers	
Stayers	52.4% (217)	47.6% (67)	284
Leavers	29.2% (14)	70.08% (34)	48
Total	231	101	332

Actual percent remaining on active duty: 85.54%

Percent correctly classified by model: 75.6%

Source: Author

According to the estimated results for junior grade male officer model presented in Table 31, only marketability of skills gained in USMC (ESKILLS, $p < .01$), searching for a civilian job ($p < .01$), and satisfaction with specific current job characteristics ($p < .01$), health benefits ($p < .01$), future career expectations ($p < .10$) and work equity ($p < .10$) are significant among the focus variables.

Table 31. Maximum Likelihood Officer Junior Grade Male Model

Variable	Estimate	Chi-Square	Pr>ChiSq
Intercept	10.7542	12.9810	0.0003
YOS	0.1343	0.9053	0.3414
EPROB	-0.2777	1.4625	0.2265
ESKILLS ***	-1.6480	13.4643	0.0002
Minority **	1.4685	5.0461	0.0247
MND *	-0.8618	2.6287	0.1049
MWD	-0.1392	0.0713	0.7895
LIMILHOU ***	1.3833	6.4405	0.0112
SUPPORT	-0.2538	0.2144	0.6433
SERVICE *	0.9216	1.8105	0.1784
USNA	-0.3918	0.3438	0.5576
ESRCH ***	-2.6041	29.7485	<.0001
LeadMor	-0.1608	0.7667	0.3812
PayBen	0.1425	0.4590	0.4981
CurrJob ***	0.5047	6.0475	0.0139
HealthBen ***	0.5292	5.6383	0.0176
Disc	-0.2197	0.8345	0.3610
FUTCREXP *	0.3880	2.6688	0.1023
Workeq *	-0.3336	1.7564	0.1851

*** Significant at one percent level

** Significant at five percent level

* Significant at ten percent level

(Significance of variables are tested with one tail test)

Source: Author

Minority status ($p < .05$), married with no dependents ($p < .10$), and the combat service ($p < .10$) dummy variables are the only significant variables among the personal and background variables. The signs of the significant independent variables are as expected except Work Equity which is only barely significant at the 10% level for a one tail test.

The results of the partial effects calculations are presented in Table 32. An increase by one category on the rating scale regarding the marketability of skills gained in the USMC decreases a junior grade male Marine officer's probability of staying by .11. Junior grade male Marine Officers who search for a job are less

likely to stay on active duty by 26.9 percentage points when compared to those who do not search for a job.

Table 32. Partial Effects of Independent Variables of Officer Junior Grade Male Model

Variable	Partial Effect
YOS	0.00377
EPROB	-0.00947
ESKILLS ***	-0.11093
Minority **	0.02356
MND *	-0.03921
MWD	-0.00444
LIMILHOU ***	0.02292
SUPPORT	-0.00856
SERVICE *	0.01833
USNA	-0.01412
ESRCH ***	-0.26991
LeadMor	-0.00519
PayBen	0.00398
CurrJob ***	0.01199
HealthBen ***	0.01243
Disc	-0.00729
FUTCREXP *	0.00970
Workeq *	-0.01169

Base case probability: 0.96917

Source: Author

The partial effect of the satisfaction with health benefits dimension is .012 indicating a 1.2 percentage points higher probability of staying for a one standard deviation increase in the factor score of a junior grade male Marine officer. A one standard deviation increase in the factor score for satisfaction with job characteristics and future career expectations increases the probability of staying for an officer junior grade male Marine by .0119, and .0097, respectively. A one standard deviation increase in the factor score of a junior grade male Marine officer for work equity decreases the probability of staying by .0116.

Based on the partial effects presented in Table 32, being a minority increases the probability of staying for a junior grade male Marine officer by .0235 when compared to Whites. Among the family status dummy variables, only married with no dependents is significant at the 10% level, decreasing the probability of staying for a junior grade male Marine officer by .039 when compared to those Marines who are not married and do not have any

dependents. Living in military housing increases the probability of staying for a junior grade male Marine officer by .0229 compared with those who do not.

Table 33 shows the satisfaction dimension variables ($p < .05$), are jointly significant. However, the dummy variables for family status, and Primary MOS are not jointly significant.

Table 33. Linear Hypotheses Testing Results of Officer Junior Grade Male Model

Joint significance test of	Wald		
	Chi-Square	DF	Pr > ChiSq
Family Status dummy variables	3.4800	2	0.1755
Primary MOS dummy variables	4.0906	2	0.1293
Satisfaction dimension variables	15.1100	7	0.0346

Source: Author

As discussed in the model specification section, data and sample size limit the variables that can be included in the retention model. This may cause omitted variable bias. Additionally, the dummy variables for family status, and satisfaction with future career expectation variables are not jointly significant giving a signal of possible irrelevant variable bias. However, the model specification is based on the relevance of these variables to retention behavior in the retention literature, and for this reason, these variables were retained in the model.

Multicollinearity in this model was also addressed with factor analysis. Variation Inflation (VIF) tests indicate that collinearity is not a severe problem in this model.

C. CHAPTER SUMMARY

This chapter presents the results of four retention models: enlisted first term males, enlisted first term females, enlisted career males, and officer junior grade males. These results include model fit measures, the significance of independent variables and partial effects. Only the most significant focus and control variables are discussed in this chapter summary. Information about the results for other, less significant variables can be found in the earlier sections of this chapter. The enlisted first term male model, which has largest sample size, also has the largest number of significant variables.

Searching for a civilian job is the one variable that is significant ($p<.01$) for all models among the civilian employment opportunities variables. The partial effect of searching for a civilian job ranges between -7.8 and -11.97 percentage points for the enlisted models, but the partial effect of searching for a civilian job is much larger, -26.9 percentage points, for the officer junior grade male model.

The perceived probability of finding a good civilian job is significant for all but the officer junior grade male model. The range of the partial effects for this variable is between -.0099 and -.0290. It has its smallest effect on the enlisted first term male model and its largest effect on the enlisted first term female model.

All of the satisfaction dimension variables are significant for the enlisted first term male model. In the remaining models, satisfaction with pay and benefits is significant only in the enlisted first term female model, satisfaction with health benefits and work equity are significant only in the officer junior grade male model, and satisfaction with specific current job characteristics and future career opportunities are significant in the enlisted career male and the officer junior grade male models.

Restricted model tests indicate that the satisfaction dimensions variables are jointly significant for all models except the enlisted first term female model. This indicates that this group of perceptual variables derived from the retention survey is important in explaining retention behavior, even when controlling for demographic characteristics and military background.

The family status categories that are included differ among models due to variation in sample size. All of the family status dummy variables except single with dependents significantly increase the probability of staying for a first term enlisted male Marine when compared to one who is single with no dependents. The largest partial effect is for being married, having dependents and not having a working spouse (MWDSN), next is being married, having no dependents and not having a working spouse (MNDSN), third is being married, having no dependents and having a working spouse (MNDSW), and last is being married,

having dependents and having a working spouse (MWDSW). This pattern indicates that the influence of marriage and number of dependents on the probability of staying decreases when a first term enlisted Marine has a working spouse.

Living in military housing is significant in the first term enlisted male and junior grade male officer models. Living in military housing increases the probability of staying for a first term enlisted and a junior grade male officer Marine by .0402 and .0229, respectively.

THIS PAGE INTENTIONALLY LEFT BLANK

VI. SUMMARY, CONCLUSION, RECOMMENDATIONS, AND LIMITATIONS

A. SUMMARY AND CONCLUSIONS

The focus of this study is to examine the factors that influence Marines in their retention decisions and to evaluate the 1999 USMC retention survey results and their accuracy in explaining actual retention behavior. This study analyzes the data obtained from the 1999 USMC retention survey that have been matched with personnel data files for the retention survey respondents. Personnel data files were obtained from HQMC and included information about the demographics and military background of survey respondents (at date of survey and as of 01, January 2004), as well as separation dates and codes for those who left the USMC subsequent to the retention survey.

Restrictions were applied to eliminate the records of those who did not have the choice to leave or to stay and those who were near retirement eligibility. Respondents with more than 12 YOS, who were older than 45 years of age, Marine officers who had less than 5 YOS, and enlisted Marines who had more than two years on their current enlistment were eliminated from the sample. Modifications to eliminate involuntary stayers and leavers and incomplete or missing values limited the sample size to 5,087 Marines. Four subgroups were analyzed: enlisted first-term males, enlisted first-term females, enlisted career males and officer junior grade males.

Preliminary bivariate analysis for these four samples (enlisted first-term males, enlisted first-term females, enlisted career males and officer junior grade males) give insight into the factors influencing the stay/leave decisions of Marines. Actual proportions of stayers in the four sub-samples are .32, .40, .70, and .86, respectively. Enlisted first term male Marines are the least likely to stay and junior grade male officer Marines are the most likely to stay. Bivariate results indicate that most of the perceptual variables derived from the responses to retention survey and some of the control variables (demographic characteristics and military background) are significantly associated with retention behavior.

Multivariate analyses were conducted to assess the selective importance of the factors influencing retention. The logit function is used for multivariate regression analysis because it predicts a binary dependent variable accurately. Explanatory variables include personal and military background variables, responses to questionnaire items about civilian employment opportunities, and responses to questionnaire items about satisfaction with specific aspects of life in the military. Factor analysis was used to identify seven satisfaction dimensions among the attitudinal data from the retention survey questionnaire items. The seven satisfaction dimensions include satisfaction with leadership and morale, pay and benefits, health benefits, current job characteristics, discrimination, future expectations, and work equity. Perceived civilian employment opportunities and these seven attitudinal factors represent the “focus” variables of the logistic regression models for this study.

The enlisted first term male model, which has the largest sample size, also has the largest number of significant variables. Model fit statistics for all models imply that independent variables have explanatory power for the retention decisions of Marines.

Model results indicate that perceptions of Marines about the focus variables which include civilian opportunities, satisfaction with current job, and satisfaction with specific aspects of life in the military are significant in explaining retention behavior, even when controlling for the demographic characteristics and military background.

Searching for a civilian job is the one variable that is significant ($p<.01$) for all models among the civilian employment opportunities variables with decreasing the probability of staying for Marines who have mentioned that they have actively looked for a civilian job. The partial effect of searching for a civilian job ranges between -7.8 and -11.97 percentage points for the enlisted models, but the partial effect of searching for a civilian job is much larger, -26.9 percentage points, for the officer junior grade male model. With all other independent variables being constant, searching for a civilian job decreases the

probability of staying for junior grade male officers by 27 percentage points, doubling the effect of this variable on enlisted, when compared to those Marines who have mentioned they have not actively looked for a civilian job. The big difference in the partial effect of searching for a civilian job may be as a result of the differences in education and marketability of gained skills between officers and enlisted.

The perceived probability of finding a good civilian job is significant for all but the officer junior grade male model. The range of the partial effects for this variable is between -.0099 and -.0290. It has its smallest effect on the enlisted first term male model and its largest effect on the enlisted first term female model.

All of the satisfaction dimension variables are significant for the enlisted first term male model. In the remaining models, satisfaction with pay and benefits is significant only in the enlisted first term female model, satisfaction with health benefits and work equity are significant only in the officer junior grade male model, and satisfaction with specific current job characteristics and future career opportunities are significant in the enlisted career male and the officer junior grade male models.

Living in military housing is significant in the first term enlisted male and junior grade male officer models. Living in military housing increases the probability of staying for a first term enlisted and a junior grade male officer Marine by .0402 and .0229, respectively. This increase may be because of the financial benefits of military housing or because this environment eases the adaptation of a Marine's family to the community.

The interaction of marital status, number of dependents and having a working spouse has a significant effect on retention for first term enlisted males. The effect of being married, having dependents and not having a working spouse (MWDSN) has the largest effect on retention, increasing the probability of staying for a first term enlisted when compared with the other four categories of family status. The family status pattern in the enlisted first term male model indicates

that the probability of staying decreases when a first term enlisted Marine has a working spouse, lightening the influence of marriage and number of dependents. This may be explained by additional income gained by the spouse that increases the economic security of the family. In addition, working spouses may encourage leaving because relocation for new military assignments disrupts the spouses career. On the other hand, in the junior grade male officer model, being married and having no dependents decreases the probability of staying when compared to single officers. Junior grade male officers who are married and do not have dependents may be less likely to stay as a consequence of having fewer family responsibilities compared to junior grade male officers who are married with dependents.

B. RECOMMENDATIONS AND LIMITATIONS

Although the study finds that the satisfaction dimensions have explanatory power on stay/leave decisions of Marines, it is difficult to draw direct policy implications. However, because these dimensions are derived from the responses to the questionnaire items of the retention survey, one can suggest that improving conditions affecting these facets would also increase satisfaction levels and, hence, retention. For example, satisfaction with leadership and morale captures the satisfaction levels of respondents with their senior's behavior, treatment of subordinates, senior's knowledge, and unit morale. Although there is no direct measurement of leadership quality on retention levels, programs to improve leadership and morale facets would be expected to improve satisfaction with leadership and morale and this would lead to increased retention.

Sample size and data problems limited the variables that could be included in the retention models. Entry age, length of initial contract, prior service, military basic pay, eligibility of SRB, eligibility of incentive pays, unemployment rate, and equivalent civilian pay are examples of variables that could not be included due to data type or sample size. This is a potential source of omitted variable bias.

The most challenging problem in this study is the limited sample size. The significance of the enlisted first term male model implies that it is worthwhile to analyze retention decisions with survey studies. Although the quality of life survey conducted in 2001 would provide information about satisfaction levels of Marines and their families with life in the military, which are important variables for retention studies, a specific retention survey would provide information about changes in perceptions over time to the Manpower planners of HQMC. Hence, conducting periodic retention surveys would gather longitudinal data on perceptions of Marines and the factors affecting their decisions. These periodic surveys would give an opportunity to analyze of the factors influencing retention decisions using a fixed effect model or data sets with bigger sample sizes that would decrease the effects of omitted variable bias and inefficiencies of some control variables. Larger samples would also allow for models to be developed and analyzed for other subgroups too small to analyze in the study (e.g., career enlisted females, junior grade female officers, field grade male officers, field grade female officers, and warrant officers).

The preliminary intention of the 1999 USMC retention survey was to achieve a full census of USMC active duty personnel. However, technical problems, both software and hardware, encountered with the Internet-based retention survey, limited the retention survey to the respondents with limited sample size. Given the time that has transpired since the survey date and the improvements on internet/intranet technology, a subsequent Internet-based retention survey could be conducted via the MOL web site, without any technical problem and with better data gathering techniques to provide larger samples that could lead to better models of retention.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. THE 1999 USMC RETENTION SURVEY QUESTIONNAIRE

RESPONSE FORMATS

Satisfaction Response Format:

- 4. Very satisfied
- 3. Somewhat satisfied
- 2. Somewhat dissatisfied
- 1. Very dissatisfied

Agree Response Format:

- 4. Strongly agree
- 3. Somewhat agree
- 2. Somewhat disagree
- 1. Strongly disagree

Frequency Response Format:

- 5. Never
- 4. Seldom
- 3. Some of the time
- 2. Most of the time
- 1. All of the time

Quality Response Format:

- 5. Excellent
- 4. Very good
- 3. Good
- 2. Poor
- 1. Very poor

Probability Response Format:

- 1. 0% (no chance)
- 2. 10% (very slight possibility)
- 3. 20% (slight possibility)
- 4. 30% (some possibility)
- 5. 40% (fair possibility)
- 6. 50% (fairly good possibility)
- 7. 60% (good possibility)
- 8. 70% (probable)
- 9. 80% (very probable)
- 10. 90% (almost sure)
- 11. 100% (certain)

USMC RETENTION CENSUS

This survey will take approximately 30 minutes. The information in this census will remain confidential. It will not be used to identify individuals. The results will be used only to report trends. Your sincere responses are needed to help improve decisions affecting Marine Corps Personnel.

VARIABLE NAME (NPS)

USMC name

DEMOGRAPHICS

DUNITTYP

unitype

What is the type of unit you are currently assigned to?

1. Base/station	12. Wing/Group Squadron
2. Division/Regiment/Battalion	13. Reserve support
3. Drill instructor/Sgt. Instructor OCS	14. FSSG/Battalion/Company
4. Embassy	15. Ship's company
5. MSG	16. SRIG
6. HQMC/MCCDC	17. MEU Staff
7. Instructor (MOS)	18. Training support
8. Joint duty	19. Long term schools/ Training (greater than 6 months)
9. Marine Barracks/MCSF	
10. Marine support battalion	
11. Recruiting duty	20. Other-not listed

DDEPLOY

deploystat

What is your current deployment status?

1. I'm currently deployed
2. I'm not currently deployed, but have deployed in the last 12 months
3. Neither of the above

DRENLST (Enlisted only)

reenl_advstat

How many times have you reenlisted in the Marine Corps?

Please do not include extensions

1. I have never reenlisted
2. I have reenlisted once
3. I have reenlisted twice
4. I have reenlisted three or more times

NOTE: Combined in original datafile with DPROMO as single field , reenl_advstat (see next entry). This question does not appear for officers (coded as missing). All enlisted E5 and above and some enlisted E1-E4 are missing due to technical problems (also coded as missing). Data may not be reliable for some groups.

DPROMO (E5 and above only)

reenl_advstat

To the best of your knowledge, what is your current promotion/advancement status?

1. I'm not yet in zone
2. I'll be in primary zone for the next promotion board
3. I've been selected for promotion
4. I've been passed over once for promotion
5. I've been passed over two or more times for promotion

NOTE: This question does not appear for enlisted personnel E1-E4 (coded as missing). Some E5 and above enlisted personnel are missing due to technical problems (also coded as missing). Data may not be reliable for some groups

DEDUC

educ

What is your highest level of education?

1. Less than high school degree
2. HS equivalency (e.g., GED, certificate of completion)
3. High school diploma
4. Less than one year of college
5. One or more years college, no degree
6. Associate's degree
7. Bachelor's degree
8. Master's degree
9. Doctoral or professional degree

DMARITAL

marital

What is your current marital status?

1. Single and never married
2. Single and divorced
3. Legally separated
4. Married (first marriage)
5. Married (previously divorced or widowed)
6. Widowed

DDEPNS

depns

How many dependent children do you have? (Highlight your selection).

0. 0
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 9 or more

DSCHOOL1 - DSCHOOL8 (DDEPNS>0 only)

school

My child(ren) attend the following type(s) of schools: (check all that apply)

1. I have no children of school age
2. Civilian (public school)
3. Private or parochial school
4. DoD school (overseas DoD-operated school)
5. DoDDES school (continental U.S. DoD-operated school)
6. Home school
7. College
8. Trade school

NOTE: Multiple entries are separated by commas in original data file. Eight variables, each taking on values of zero or one, were constructed to correspond with the response

choices, above. This question does not appear if respondent has no children (coded as missing).

DMILHOU

milhousing

Do you live in military housing?

1. Yes
2. No

DRACE1-DRACE6

race

What is your race/ethnicity? (You may select more than one if you have a combined racial/ethnic heritage).

1. White/Caucasian
2. Black/African American
3. Asian or Pacific Islander (Filipino, Guamanian, etc.)
4. Hispanic/Latino/Spanish descent
5. Native American, including American Indian, Aleut, Inuit, and Eskimo
6. Other race/ethnic group

NOTE: Multiple entries are separated by commas in original data file. Six variables, each taking on values of zero or one were constructed to correspond with the response choices above.

DRACER

Because respondents could select multiple race/ethnicity designations, race/ethnicity information from DRACE1-DRACE6 was recoded to yield mutually exclusive categories based on this hierarchy: first, all those identifying themselves as Hispanic were assigned a value of 4. Remaining respondents who selected Black were assigned a value of 2; remaining respondents who selected Asian/Pacific Islander were assigned a value of 3; remaining respondents who selected White were assigned a value of 1; finally, all remaining respondents were assigned a value of 5.

1. White/Caucasian
2. Black/African American
3. Asian or Pacific Islander
4. Hispanic/Latino/Spanish descent (may be of any race)
5. Other (includes Native American and Other race/ethnic group)

DRELIG

religion

What is your religious preference?

1. No religious preference
2. Catholic
3. Protestant (Baptist, Methodist, Lutheran, etc.)
4. Mormon
5. Jewish
6. Orthodox Christian (Greek, Russian, etc.)
7. Muslim
8. Buddhist
9. Hindu
10. Atheist

11. Agnostic
12. Some other religion

DSPJOB1-DSPJOB7 (DMARITAL=4 or 5 only)

spousjob

(Mark all that apply)

What is your spouse's employment situation?

1. My spouse works full time in a civilian job
2. My spouse works part time in a civilian job
3. My spouse is unemployed, but actively seeking employment
4. My spouse works in the home (homemaker)
5. My spouse works at home (self-employed)
6. My spouse is a student
7. My spouse is active duty military

NOTE: Multiple entries are separated by commas in original data file. Seven variables, each taking on a value of zero or one, were constructed to correspond with the response choices above. This question does not appear if respondent is unmarried (coded as missing).

DSPJOBR

Because respondents could select multiple employment categories, spouse's employment situation from **DSPJOB1-DSPJOB7** was recoded to yield mutually exclusive categories based on this hierarchy: first, all those identifying their spouse as working full time in a civilian job were assigned a value of 1; remaining respondents whose spouse was active duty military were assigned a value of 7; remaining respondents who selected part time employment were assigned a value of 2; remaining respondents who selected unemployed were assigned a value of 3; remaining respondents who selected student were assigned a value of 6; remaining respondents who selected homemaker were assigned a value of 4; finally, all remaining respondents were assigned a value of 5. The coding for these mutually exclusive categories corresponds to the response choices for **DSPJOB1-DSPJOB7**, above.

FAMILY ENVIRONMENT AND PERSONAL LIFE

FSPRILOC (DMARITAL=4 or 5 only)

spoucareer

To what extent have your spouse's career opportunities been limited by frequency of relocation?

1. Not at all
2. Somewhat
3. A great deal

NOTE: This question does not appear if respondent is unmarried (coded as missing).

FSPDLOC (DMARITAL=4 or 5 only)

spouloca

To what extent have your spouse's career opportunities been limited by duty location?

1. Not at all
2. Somewhat
3. A great deal

NOTE: This question does not appear if respondent is unmarried (coded as missing).

FSCHLSAT (DDEPNS>0 only)

schoolsat

How satisfied are you with the school system(s) your children use?
[Satisfaction response format with additional response category, n/a, does not apply]

NOTE: This question does not appear if respondent has no children (coded as missing). Response category n/a is coded as -9.

FDYCARAV (DDEPNS>0 only)

daycare

How satisfied are you with the availability of daycare in your area?
[Satisfaction response format with additional response category, n/a, does not apply]

NOTE: This question does not appear if respondent has no children (coded as missing). Response category n/a is coded as -9.

FDYCAROU (DDEPNS>0 only)

daycaresat

How satisfied are you with the quality of the day care you use?
[Satisfaction response format with additional response category, n/a, does not apply]

NOTE: This question does not appear if respondent has no children (coded as missing). Response category n/a is coded as -9.

FDYCARCO (DDEPNS>0 only)

daycarecost

How satisfied are you with the cost of daycare in your area?
[Satisfaction response format with additional response category, n/a, does not apply]

NOTE: This question does not appear if respondent has no children (coded as missing). Response category n/a is coded as -9.

FDENTAL (DMARITAL=4 or 5 and DSPJOB ≠ 6; or DDEPNS>0)

dentaldepsat

How satisfied are you with the dependent dental insurance program?
[Satisfaction response format]

NOTE: This question does not appear if respondent has neither spouse nor children (coded as missing).

FMEDAV (DMARITAL=4 or 5 and DSPJOB ≠ 6; or DDEPNS>0)

medfamavail

How satisfied are you with the availability of FAMILY medical care?
[Satisfaction response format]

NOTE: This question does not appear if respondent has neither spouse nor children (coded as missing).

FMEDOU (DMARITAL=4 or 5 and DSPJOB ≠ 6; or DDEPNS>0)

medfamqual

How satisfied are you with the quality of FAMILY medical care?
[Satisfaction response format]

NOTE: This question does not appear if respondent has neither spouse nor children (coded as missing).

FOTRSAT	qtrssat
How satisfied are you with your current housing? [Satisfaction response format]	
FOTRAV	qtrsgov
How satisfied are you with the AVAILABILITY of government quarters? [Satisfaction response format]	
FOTRSAF	qtrssafe
How satisfied are you with the safety and security of your housing neighborhood? [Satisfaction response format]	
FAMTIME (DMARITAL=4 or 5 or DDEPNS>0)	famtime
How satisfied are you with your balance of work and family time? [Satisfaction response format] NOTE: This question does <u>not</u> appear if respondent has neither spouse nor children (coded as missing).	
FOBEN (DMARITAL=4 or 5 or DDEPNS>0)	ofambensat
Overall, how satisfied are you with the benefits and programs for families provided by the Marine Corps? [Satisfaction response format] NOTE: This question does <u>not</u> appear if respondent has neither spouse nor children (coded as missing).	
PAY & BENEFITS	
BDENTAL	dentalsat
How satisfied are you with YOUR dental care? [Satisfaction response format]	
BMEDAV	medavail
How satisfied are you with the availability of YOUR medical care? [Satisfaction response format]	
EMEDQ	medqual
How satisfied are you with the quality of YOUR medical care? [Satisfaction response format]	
BBAH	bah
How satisfied are you with the amount you receive for your Basic Housing Allowance? (BAH, which used to be known as VHA and	

BAQ, is designed to pay 80% of your housing costs) [Satisfaction response format]	
<u>BBASPAY</u>	basepaysat
How satisfied are you with the amount of your base pay? [Satisfaction response format]	
<u>BSLPAYAV</u>	specpayavail
How satisfied are you with the availability of special pays, such as bonuses or special duty assignment pay? [Satisfaction response format]	
<u>BSPAYAM</u>	spclpaysat
How satisfied are you with the amount of special pays, such as bonuses or special duty assignment pay? [Satisfaction response format with additional response category, -9, not applicable]	
<u>BPCS</u>	pcssat
How satisfied are you with the amount of reimbursement for PCS moves? [Satisfaction response format]	
<u>BRENL TBO</u> (Enlisted only)	reelistbonus
How satisfied are you with the amount available for re-enlistment bonuses? [Satisfaction response format with an additional response category, -9, not applicable] NOTE: This question does <u>not</u> appear if respondent is an officer (coded as missing).	
<u>BTOTPAY</u>	milcompsat
How satisfied are you with your total military compensation? [Satisfaction response format]	
<u>BMWR</u>	benmwr
How satisfied are you with MWR benefits? [Satisfaction response format]	
<u>BEDUC</u>	benedu
How satisfied are you with your educational benefits? [Satisfaction response format]	
<u>BRETC</u>	benretire
How satisfied are you with retirement benefits as outlined under current law? [Satisfaction response format]	

<u>BTREND</u>	benefitsa
Generally, my observation is that benefits are...	
1. Greatly improving	
2. Improving	
3. Staying the same	
4. Slowly eroding	
5. Being severely cut	
<u>BOBEN</u>	obensat
Overall, how satisfied are you with YOUR benefits? [Satisfaction response format]	
<u>BOPAY</u>	opaysat
Overall, how satisfied are you with YOUR pay? [Satisfaction response format]	
<u>JOB-RELATED QUESTIONS</u>	
<u>JCURR</u>	jobsat
How satisfied are you with your current job assignment? [Satisfaction response format]	
<u>JPMOS</u>	pmissat
How satisfied are you with the extent to which you are assigned to jobs within your primary MOS? [Satisfaction response format]	
<u>JCHAL</u>	chaljobsat
How satisfied are you with the level of challenge in your current job? [Satisfaction response format]	
<u>JHOURS</u>	workhrsat
How satisfied are you with the number of hours you are required to work? [Satisfaction response format]	
<u>JAUTH</u>	authorsat
How satisfied are you with the authority you are given to do your job? [Satisfaction response format]	
<u>JRESP</u>	responsat
How satisfied are you with the level of responsibility in your current job? [Satisfaction response format]	

JEXPECTE (Enlisted only) expect

Are you doing the things you expected to be doing when you ORIGINALLY joined the Marine Corps?

Enlisted

- 0.** No
- 1.** Yes
- 2.** I had no expectations regarding my job as a Marine.

NOTE: Response codes differ for officer and enlisted personnel. Responses for officers are coded as missing.

JEXPECTO (Officers only) expect

Are you doing the things you expected to be doing when you ORIGINALLY joined the Marine Corps?

Officers

- 0.** Yes
- 1.** No
- 2.** I had no expectations regarding my job as a Marine.

NOTE: Response codes differ for officer and enlisted personnel. Responses for enlisted are coded as missing.

JCNTRIB helpgoals

I feel my contributions help my unit accomplish its mission
[Agree response format]

JUSTAFF understf

How often have you had to "pick up the load" due to the unit being understaffed?
[Frequency response format]

JWKFAIR workfair

How often have you had to "pick up the load" because seniors in the chain of command don't assign work fairly?
[Frequency response format]

JOJOB ojobsat

Overall, how satisfied are you with your current military job and working conditions?
[Satisfaction response format]

TRAINING and EQUIPMENT

TREADY trainready

I have received the training needed to make my contribution to unit readiness.
[Agree response format]

<u>TNEW</u>	trainnew
Recruit/initial training is fully adequate. [Agree response format]	
<u>TMOS</u>	trainmos
MOS training is fully adequate. [Agree response format]	
<u>TOJT</u>	trainojt
On-the-job-training is fully adequate. [Agree response format]	
<u>TPME</u>	trainpme
Professional Military Education is fully adequate. [Agree response format]	
<u>TEXER</u>	trainexercise
Effective training occurs during exercises. [Agree response format]	
<u>TCMBT</u>	traincmbt
Combat skills training is fully adequate. [Agree response format]	
<u>TUNIT</u>	trainunit
Unit-level training (not combat skills) is fully adequate. [Agree response format]	
<u>TEOPP</u>	equipwarper
My unit has the necessary personal equipment (782 gear, personal weapons, special clothing, etc.) to accomplish our mission. [Agree response format]	
<u>TEOPU</u>	equipwarunit
My unit has the necessary unit equipment (crew served weapons, comm gear, vehicles, aircraft, computers, etc.) to accomplish our mission. [Agree response format]	
<u>TEOPNEE</u>	equipnec
(You are not required to answer this question). What equipment do you need? Please list representative items below.	
<hr/> <hr/>	
NOTE: If no response, -9. Code is character.	

<u>TOTRAIN</u>	otrainsat
Overall, how satisfied are you with your Marine Corps training? [Satisfaction response format]	
<u>TOEQP</u>	oequipsat
Overall, how satisfied are you with your Marine Corps equipment? [Satisfaction response format]	
<u>CAREER</u>	
<u>CASIGN</u>	assignsat
How satisfied are you with your ability to have some influence over your assignments in the Marine Corps? [Satisfaction response format]	
<u>CSECUR</u>	jobsecsat
How satisfied are you with your job security in the Marine Corps? [Satisfaction response format]	
<u>CADVOP</u>	advoppsat
How satisfied are you with your opportunities for promotion and advancement in the Marine Corps? [Satisfaction response format]	
<u>CDEV</u>	careerdevsat
How satisfied are you with your opportunities for career development (training, education) in the Marine Corps? [Satisfaction response format]	
<u>CSPSUP</u> (DMARITAL=4 or 5 only)	jobsatsp
My spouse encourages me to continue my career in the Marine Corps. [Agree response format] NOTE: This question does <u>not</u> appear if respondent is unmarried (coded as missing).	
<u>IAGAIN</u>	maragain
If I had to do it over, I'd again choose to be a United States Marine. [Agree response format] NOTE: Some responses are missing due to technical problems. Data may not be reliable for some groups.	
<u>IRECOM</u>	marrec
I'd recommend joining the Marine corps to a friend or relative. [Agree response format] NOTE: Some responses are missing due to technical problems.	

Data may not be reliable for some groups.

CPROMO

promotfair

Promotions in the Marine Corps are based on effective performance, competence, and published Marine Corps standards (e.g., PME, height/weight)

[Agree response format]

NOTE: Some responses are missing due to technical problems.

Data may not be reliable for some groups.

CPROMOP

promoprb

What do you think your chances are of being promoted to the next higher grade? (If you are planning to leave active duty Marine Corps service, please answer as though you were staying.)

[Probability response format]

NOTE: Some responses are missing due to technical problems.

Data may not be reliable for some groups.

COCREER

ocareersat

Overall, how satisfied are you with career opportunities in the Marine Corps?

[Satisfaction response format]

READINESS, WORK ENVIRONMENT, MORALE, TEMPO

CTMPO

optempo

For me personally, the operations tempo (i.e., number of deployments, exercises, contingencies) is..

- 5. Much too high
- 4. A little too high
- 3. About right
- 2. A little too low
- 1. Much too low

FAWAY

timeaway

How much accumulated time have your Marine Corps duties required you to be away from home during the past year?

Include all field time, other training, FMF duty and TAD that required you to be away from your barracks or home for periods of more than 24 hours.

- 1. None at all
- 2. 1 week - 3 months
- 3. 4 - 6 months
- 4. 7 - 9 months
- 5. 9 - 12 months

<u>SOWNUP</u>	misakresp
In my unit, when mistakes occur, those involved take responsibility.	
<ol style="list-style-type: none"> 1. Never 2. Seldom 3. Some of the time 4. Most of the time 5. All of the time 	
<u>SZERO</u>	zerodefcmd
How often have you felt that a "zero-defect" standard (i.e., any mistake, however minor, could jeopardize your career) was applied to you or others <u>in your unit</u> during the last year?	
<ol style="list-style-type: none"> 1. Never 2. Seldom 3. Some of the time 4. Most of the time 5. All of the time 	
<u>SRACE</u>	cmdreseth
How satisfied are you with your command's response to instances of racial/ethnic discrimination? [Satisfaction response format with additional response category, -9, not applicable, no discrimination observed or experienced]	
<u>SGENDER</u>	cmdresgndr
How satisfied are you with your command's response to instances of gender discrimination or sexual harassment? [Satisfaction response format with additional response category, -9, not applicable, no discrimination observed or experienced]	
<u>SRELIG</u>	cmdresrel
How satisfied are you with your command's response to instances of religious discrimination? [Satisfaction response format with additional response category, -9, not applicable, no discrimination observed or experienced]	
<u>SMORAL</u>	unitmotiv
The morale in my unit is...	
<ol style="list-style-type: none"> 5. Very high 4. High 3. Moderate 2. Low 1. Very low 	
<u>SREADY</u>	unitready
My unit's level of readiness can best be described as: [Quality response format]	

SREADYT

unitreadytrend

My unit's level of readiness is

1. decreasing
2. staying the same
3. increasing

SPUBLIC

publicsup

Most Americans support the USMC.

[Agree response format]

LEADERSHIP

How would you rate the quality of leadership of the following:

<u>LGENOF</u>	General officers
<u>LFLDOF</u>	Field grade officers
<u>LJROF</u>	Junior officers
<u>LWAROF</u>	Warrant officers
<u>LSNCO</u>	Senior noncommissioned officers
<u>LNCO</u>	Noncommissioned officers

[Quality response format]

leadgen
leadfield
leadjr
leadwar
leadsnco
leadnco

LGOALS

commgoals

My immediate seniors clearly communicate goals and plans

for what this unit will achieve under their command.

[Agree response format]

LINPUT

lisenrec

My immediate seniors listen to and consider my input.

[Agree response format]

LLearn

learn

My immediate seniors develop, encourage, and facilitate learning.

[Agree response format]

LSUBOR

respect

My immediate seniors show respect for subordinates.

[Agree response format]

LCOMM

inform

My immediate seniors keep people informed about issues
affecting them.

[Agree response format]

LRECOG

perform

My immediate seniors recognize and reward good performance.

[Agree response format]

<u>LFAIR</u>	fair
My immediate seniors enforce performance standards fairly. [Agree response format]	
<u>LXTRNG</u>	interfere
My immediate seniors try to see that outside demands do not interfere with our scheduled training. [Agree response format]	
<u>LINNOV</u>	innovate
My immediate seniors encourage innovation. [Agree response format]	
<u>LTECH</u>	tech
My immediate seniors have the technical knowledge and military skills needed to be successful in this command. [Agree response format]	
<u>LFOCUS</u>	unitgood
My immediate seniors put the good of the unit above personal ambition. [Agree response format]	
<u>LEXPECT</u>	expectperf
My immediate seniors clearly explain what is expected in my performance. [Agree response format]	
<u>LRESOU</u>	resource
My immediate seniors try to see that we have the resources to do our jobs. [Agree response format]	
<u>LSUPP</u>	support
My immediate seniors support my career development. [Agree response format]	
<u>LCOHER</u>	cohere
My immediate seniors encourage unit cohesiveness. [Agree response format]	
<u>LMLEAD</u>	takelead
My immediate seniors encourage me to take on leadership responsibilities. [Agree response format]	

<u>LREADY</u>	ready
My immediate seniors keep us focused on unit readiness. [Agree response format]	
<u>LMODEL</u>	leadbehav
My immediate seniors demonstrate, through personal example, high standards of behavior and ethics. [Agree response format]	
<u>LOPENU</u>	opencandidunit
My immediate seniors encourage open and candid discussion about unit problems. [Agree response format]	
<u>LOPENP</u>	opencandidper
My immediate seniors encourage open and candid discussion about personal problems. [Agree response format]	
<u>LFDBK</u>	feedbaesat
My immediate seniors give clear and timely feedback on my individual performance. [Agree response format]	
<u>LREWRD</u>	bestreward
Rewards and recognition are given to those who deserve them in my unit. [Agree response format]	
<u>LOLEAD</u>	oleadersat
Overall, how satisfied are you with Marine Corps leadership? [Satisfaction response format]	

CIVILIAN EMPLOYMENT OPPORTUNITIES

<u>ESRCH</u>	jobsearch
Have you actively looked for civilian employment in the past 12 months?	
1. Yes	
0. No	
<u>EOFFER</u>	joboffer
In the past 12 months, have you received any civilian job offers?	
1. Yes	
0. No	

ESKILLS

jobskills

I have gained skills in the Marine Corps that are highly marketable for civilian employment.
 [Agree response format]

EPROE

probgoodjob

If you were to leave the service now, how likely would you be to find a good civilian job?

0. 0% (no chance)
1. 10% (very slight possibility)
2. 20% (slight possibility)
3. 30% (some possibility)
4. 40% (fair possibility)
5. 50% (fairly good possibility)
6. 60% (good possibility)
7. 70% (probable)
8. 80% (very probable)
9. 90% (almost sure)
10. 100% (certain)

INTENTIONS/EXPECTATIONS

(ICREERE) (Enlisted only) <<This question was asked of enlisted, but does not appear in the NPS data set because of technical problems.>>

careerintenentl

Which of the following statements best describes your career intentions at this time?

1. I intend to stay on active duty until retirement eligible
2. I intend to stay on active duty beyond retirement eligibility
3. I intend to stay on active duty, but not until retirement
4. I'm not sure what I intend to do.
5. I intend to leave the Marine Corps at my EAS.
6. I'd like to stay on active duty but I'm not able to renew my contract at my EAS/ECC
7. I'm being involuntarily separated before reaching my EAS.
8. I'm voluntarily leaving before my EAS (early release for education, hardship discharge, etc.)

NOTE: This item cannot be used for analysis.

ICREERO (Officers only)

careerintentofc

Which of the following statements best describes your career intentions at this time?

1. I intend to stay on active duty until retirement eligible
2. I intend to stay on active duty beyond retirement eligibility
3. I intend to stay on active duty, but not until retirement
4. I'm not sure what I intend to do.
5. I intend to leave the Marine Corps voluntarily at the end of my current obligation.
6. I'd like to stay on active duty but I'm not able to augment.
7. I'm being involuntarily separated
8. I'm voluntarily leaving before my EAS or end of current

obligation (early release for education, hardship discharge, etc.)

NOTE: This question does not appear if respondent is enlisted (coded as missing).

(IRENLST) (Enlisted only) <<This question was asked of enlisted, but does not appear in the NPS data set due to technical problems.>> reenlistnl

How likely are you to re-enlist at the end of your current term of service?

- 00. Does not apply, I plan to retire
- ? . Does not apply, I plan to leave active duty service

[Probability response format with additional response categories, above]

NOTE: This item cannot be used for analysis.

IAUGMNT (Officers only) augment

How likely are you to apply for augmentation in the regular Marine Corps?

[Probability response format with additional response category, -9, does not apply, I am already a regular officer]

NOTE: This question does not appear if respondent is enlisted (coded as missing).

IYEARS intntryrs

When you finally leave the Marine Corps, how many years do you expect to have served on active duty?

1. 1	11. 11	21. 21
2. 2	12. 12	22. 22
3. 3	13. 13	23. 23
4. 4	14. 14	24. 24
5. 5	15. 15	25. 25
6. 6	16. 16	26. 26
7. 7	17. 17	27. 27
8. 8	18. 18	28. 28
9. 9	19. 19	20. 29
10. 10	20. 20	30. 30 or more

INVOL involssep

How likely are you to be involuntarily separated before you desire to leave the Marine Corps?

[Probability response format]

IOBLIG (Officers only) curreoblig

How many months do you have left in your current obligation?

- 1. 0, indef. I have no current obligation
- 2. 1 - 6
- 3. 6 - 12
- 4. 12 - 24
- 5. 24+

NOTE: This question does not appear if respondent is enlisted (coded as missing).

(ICURENL) (Enlisted only) <<This question was asked of enlisted but does not appear in the NPS data set due to technical problems.>> curreoblig

How many months do you have left in your current contract or extension?

months

NOTE: This item cannot be used for analysis.

IRESRV

reserve

When you finally leave active duty, do you plan to join
a Marine Corps reserve unit?

- 9. Does not apply, I am not eligible to join
- 5. Definitely yes
- 4. Probably yes
- 3. Don't know/ not sure
- 2. Probably no
- 1. Definitely no

OVERALL SATISFACTION

OSATMC

osatmc

Overall, how satisfied are you with the Marine Corps?
[Satisfaction response format]

IMPORTANCE FACTORS

Regardless of your career plans with the Marine Corps, there are probably things that make you want to STAY in the Marine Corps and other things that make you want to LEAVE. Even if you plan to stay until retirement, there may be aspects of your career that sometimes make you consider leaving. Likewise, if you plan to leave the Marine Corps, there are probably things about being a Marine that you have enjoyed and that you would miss. The purpose of the last two sections of this survey is to identify BOTH of these sets of factors.

Factors That Contribute To The Desire to Leave

Instructions: Rate each factor in the following list in terms of the extent to which it would make a contribution to your desire to leave active duty service in the Marine Corps. A later part of the census will allow you to identify the aspects of your life/career in the Marine Corps that would have a positive effect on your desire to stay on active duty service.

Response format:

How important are each of the following to your desire to leave the Marine Corps?

- 4. very important
- 3. important
- 2. somewhat important
- 1. not important

<u>Job</u>		
<u>LJCURR</u>	Current job assignment	job0
<u>LJFUTR</u>	Anticipated future job assignments	job1
<u>LJWKLD</u>	Fairness of distribution of workload	job2
<u>LJPEERS</u>	Marines I work with currently	job3
<u>LJHOURS</u>	Number of hours required by work	job4
<u>LJRESPH</u>	Level of responsibility in my current job assignment: too high	job5
<u>LJRESPL</u>	Level of responsibility in my current job assignment: too low	job6
<u>LJAUTH</u>	Authority to do my job effectively	job7
<u>LJFDBK</u>	Feedback on my job performance	job8
<u>LJCHALH</u>	Work too challenging	job9
<u>LJCHALL</u>	Work not challenging enough	job10
<u>LJTRAJN</u>	Availability of training to do my job effectively	job11
<u>LJEQUTP</u>	Availability of equipment to do my job effectively	job12

<u>Career</u>		
<u>LCADVOP</u>	Advancement opportunities	career13
<u>LCPROMO</u>	Promotion fairness	career14
<u>LCSECUR</u>	Job security	career15
<u>LCUSEMC</u>	Changes in the way the Marine Corps is being utilized	career16
<u>LCDEV</u>	Opportunities for career development (training, education)	career17
<u>LMONIT</u>	Interaction with monitors	career18
<u>LCPMOS</u>	Desirability of primary MOS	career19
<u>LCMOSOP</u>	Limited career opportunities in my primary MOS	career20
<u>LCXMOS</u>	Limited career opportunities outside my primary MOS	career21
<u>LCCIV</u>	Career opportunities in the civilian sector	career22
<u>LCCMBAT</u>	Opportunity for combat training	career23
<u>LCUTRNG</u>	Opportunities for unit level training	career24
<u>LCQTRNG</u>	Quality of training	career25
<u>LCTMPOH</u>	Optempo (number of contingencies, deployments, exercises): too high	careeropta26
<u>LCTMPOL</u>	Optempo (number of contingencies, deployments, exercises): too low	careeropth27

Family Environment and Personal Life

<u>LFDLOCC</u>	Current duty location	famenvperlife28
<u>LFDLOCF</u>	Anticipated future duty location	famenvperlife29
<u>LFMOVEF</u>	Frequency of moves	famenvperlife30
<u>LFMOVES</u>	Impact of frequency of moves on spouse's career*	famenvperlife31
<u>LFLOCS</u>	Impact of duty station location on spouse's career*	famenvperlife32
<u>LFMOVEC</u>	Impact of frequency of moves on children's education*	famenvperlife33
<u>LFAWAY</u>	Time away from home/family	famenvperlife34
<u>LFFREE</u>	Limitations on personal freedom	famenvperlife35
<u>LFFSSA</u>	Availability of family support services	famenvperlife36
<u>LFFSSQ</u>	Quality of family support services	famenvperlife37
<u>LFREC</u>	Quality of recreational services	famenvperlife38
<u>LFHOUAV</u>	Availability of housing	famenvperlife39
<u>LFHOUQ</u>	Quality of housing	famenvperlife40

*These items are "greyed-out" on the questionnaire and do not appear in data for LFMOVES and LFLOCS if respondent is unmarried; or for LFMOVEC if respondent has no children.

Benefits

<u>LBRETC</u>	Current retirement benefits	benefits41
<u>LBRETF</u>	Possible changes to future retirement benefits	benefits42
<u>LBMEDC</u>	Current medical/dental benefits for service member	benefits43
<u>LBMEDF</u>	Possible changes to future medical/dental benefits	benefits44
<u>LFMED</u>	Current medical/dental benefits for families	ben41a
<u>LEPAYC</u>	Current pay	benefits45
<u>LEPAYF</u>	Anticipated future pay	benefits46
<u>LBEDUC</u>	Educational benefits	ben48a
<u>LBINCAV</u>	Availability of incentive pay (e.g., bonuses)	benefits47
<u>LBINCAM</u>	Amount available of incentive pay (e.g. bonuses)	benefits48

Leadership

<u>LLGENOF</u>	The quality of General officer leadership	leadership49
<u>LLFLDOF</u>	The quality of Field grade officer (Maj, Lt Col, Col) leadership	leadership50
<u>LLJROF</u>	The quality of Jr. officer (Capt, Lt) leadership	leadership51
<u>LLWAROF</u>	The quality of warrant officer leadership	leadership52
<u>LLSNCO</u>	The quality of SNCO leadership	leadership53
<u>LLNCO</u>	The quality of NCO leadership	leadership54
<u>LSMORAL</u>	Unit morale	leadership55
<u>LLSUBOR</u>	Immediate seniors' treatment of subordinates	leadership56
<u>LLTECH</u>	Immediate seniors' technical competence	leadership57
<u>LLFOCUS</u>	Immediate seniors' focus on personal advancement versus the good of the unit	
<u>LLCOMM</u>	Communication to marines about issues affecting them	leadership58
<u>LLINPUT</u>	Immediate seniors' consideration of input from individual marines	leadership59
		leadership60

Culture

<u>LSPUBLIC</u>	Public support for USMC	culture61
<u>LSFITH</u>	Physical fitness standards: too high	culture62
<u>LSFITL</u>	Physical fitness standards: too low	culture63
<u>LSAPPRH</u>	Personal appearance standards: too high	culture64
<u>LSAPFRL</u>	Personal appearance standards: too low	culture65
<u>LSMORLH</u>	Moral standards: too high	culture66
<u>LSMORLL</u>	Moral standards: too low	culture67
<u>LSZERO</u>	Zero defects standard of performance (low tolerance for mistakes)	culture68

<u>LSXTRNG</u>	Outside demands that interfere with training	culture69
<u>LSRACE</u>	Racial discrimination	culture70
<u>LSGENDR</u>	Gender discrimination	culture71
<u>LSRELIG</u>	Religious discrimination	culture72

Please list any other features that would contribute to your desire to leave active duty service ONLY IF you would rate them as "very important" to your decision.

<u>LWRITE1</u>	#1 _____	writeinf1
<u>LWRITE2</u>	#2 _____	writeinf2
<u>LWRITE3</u>	#3 _____	writeinf3
<u>LWRITE4</u>	#4 _____ (-9 if no response)	writeinf4

Ranking Influences on Leaving

[Note: Construct a list of all factors rated by respondent as "very important". If the preceding list is a "null set", construct a list of all factors rated as "important"]

Instructions: Those factors that you identified as most important that would affect your decision to leave active duty service in the Marine Corps are listed below. Rank order the top four that would influence you to leave:
(Click on the DROP-DOWN list to make your selections).

<u>LRANK1</u>	Most important factor in desire to leave	rankfactor1
<u>LRANK2</u>	Second most important factor in desire to leave	rankfactor2
<u>LRANK3</u>	Third most important factor in desire to leave	rankfactor3
<u>LRANK4</u>	Fourth most important factor in desire to leave.	rankfactor4

Note: Responses correspond to the number at the right edge of the USMC name or writeinf1 - writeinf4.
Code is character.

Factors That Contribute To The Desire To Stay

Instructions: Rate each factor in the following list in terms of the extent to which it would make a positive contribution to your desire to stay on active duty service in the Marine Corps.

Response format:

How important is each of the following to your desire to stay in the Marine Corps?

4. Very important
3. Important
2. Somewhat important
1. Not important

<u>Job</u>		
<u>SJCURR</u>	Current job assignment	jobm73
<u>SJFUTR</u>	Anticipated future job assignments	jobm74
<u>SJPEERS</u>	Marines I work with currently	jobm75
<u>SJRESP</u>	Level of responsibility I am given	jobm76
<u>SJAUTH</u>	Authority to do my job effectively	jobm77
<u>SJfdbk</u>	Feedback on my job performance	jobm78
<u>SJChal</u>	Challenging work	jobm79

<u>Career</u>		
<u>SCADVOP</u>	Advancement opportunities	careerm80
<u>SCSECUR</u>	Security	careerm81
<u>SCMISSN</u>	Participation in the mission of the Marine Corps	careerm82
<u>SCDEV</u>	Opportunities for career development (training, education)	careerm83
<u>SCMGMT</u>	Career management	careerm84
<u>SCOPPPMC</u>	Career opportunities in the Marine Corps	careerm85
<u>SCPPOS</u>	Primary MOS job assignments	careerm86
<u>SCXPMOS</u>	Non-primary MOS job assignments	careerm87
<u>SCCMBAT</u>	Opportunity for combat training	careerm88
<u>SCTMPO</u>	Optempo (number of contingencies, deployments, and exercises)	careerm89
<u>Family Environment and Personal Life</u>		
<u>SFDLOCC</u>	Current duty location	famenvperifem90
<u>SFLOCO</u>	Opportunity to serve in other duty locations	famenvperifem91
<u>SMOVEF</u>	Frequency of moves	famenvperifem92
<u>SFFSS</u>	Family support services	famenvperifem93
<u>SFREC</u>	Recreational services	famenvperifem94
<u>SEMHOU</u>	Access to military housing	famenvperifem95
<u>Benefits</u>		
<u>SBRET</u>	Retirement benefits	benefitsm96
<u>SBMED</u>	Medical/dental benefits	benefitsm97
<u>SPPAY</u>	Military pay	benefitsm98
<u>SBINC</u>	Amount and availability of incentive pay (e.g., bonuses)	benefitsm99
<u>Leadership</u>		
<u>SLGENOF</u>	The quality of General officer leadership	leadershipm100
<u>SLFLDOF</u>	The quality of Field grade officer (Maj, LtCol, Col) leadership	leadershipm101
<u>SLJROF</u>	The quality of Jr. officer (Capt, Lt) leadership	leadershipm102
<u>SLWAROF</u>	The quality of Warrant officer leadership	leadershipm103
<u>SLSNCO</u>	The quality of SNCO leadership	leadershipm104
<u>SLNCO</u>	The quality of NCO leadership	leadershipm105
<u>SSUNITP</u>	Unit cohesion and pride	leadershipm106
<u>SLSUBOR</u>	Immediate seniors' treatment of subordinates	leadershipm107
<u>SLTECH</u>	Immediate seniors' technical competence	leadershipm108
<u>SLFOCUS</u>	Immediate seniors' focus on the good of the unit versus personal advancement	
<u>SLCOMM</u>	Communication to marines about issues affecting them	leadershipm109
<u>SLINPUT</u>	Immediate seniors' consideration of input from individual marines	leadershipm110
		leadershipm111
<u>Culture</u>		
<u>SSPUBLIC</u>	Public support for USMC	culturem112
<u>SSFIT</u>	Physical fitness standards	culturem113
<u>SSAPPR</u>	Personal appearance standards	culturem114
<u>SSMORL</u>	Moral standards	culturem115
<u>SSSERVE</u>	Chance to serve country	culturem116
<u>SSPRIDE</u>	Pride in being an active duty Marine	culturem117
<u>SSTRAVEL</u>	Opportunity to travel	culturem118
<u>SSWOMEN</u>	Opportunities for women in the Marine Corps	culturem119
<u>SSMINOR</u>	Opportunities for racial/ethnic group minorities in the Marine Corps	culturem120
<u>SSFRNDS</u>	Friendships and acquaintances	culturem121

Ranking Influences on Staying

[Note: Construct a list of all factors rated by respondent as "very important"; If the preceding list is a "null set", construct a list of all factors rated as "important"]

Instructions: Those factors that you identified as most important to your desire to stay on active duty service in the Marine Corps are listed below. Rank order the top four:
(Click on the DROP-DOWN list to make your selections).

<u>SRANK1</u>	Most important factor in desire to stay	rankfactorm1
<u>SRANK2</u>	Second most important factor in desire to stay	rankfactorm2
<u>SRANK3</u>	Third most important factor in desire to stay	rankfactorm3
<u>SRANK4</u>	Fourth most important factor in desire to stay. (-9 if missing)	rankfactorm4

Note: Responses correspond to the number at the right edge of the USMC name .
Code is character.

DATE AND TIME

<u>POSTDATE</u>	Date survey completed: 00/00/00	datetaken
<u>ETIME</u>	Time elapsed to complete questionnaire (in minutes)	datetaken starttime

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. PRIMARY MOS LISTINGS FOR MOS CATEGORIES

Combat Arms MOS Group			
03XX	Infantry	08XX	Artillery
18XX	Tank and Assault Amphibian Vehicle		
Combat Support MOS Group			
02XX	Intelligence	05XX	Marine Air Ground Task Force Plans
13XX	Engineer, Construction, Facilities and Equipment	21XX	Ordnance
23XX	Ammunition and Explosive Ordnance Disposal	25XX	Operational Communications
26XX	Signals Intelligence, Ground Electronics	60XX, 61XX	Aircraft Maintenance
63XX, 64XX	Avionics	65XX	Aviation Ordnance
72XX	Air Control, Air Support, Anti-air Warfare, Air Traffic Control	73XX	Navigation Officer, Enlisted Flight Crews
75XX	Naval Pilots, Naval Flight Officers		
Combat Service MOS Group			
01XX	Personnel and Administration	04XX	Logistics
06XX	Command and Control Systems	11XX	Utilities
28XX	Ground Electronics Maintenance	30XX	Supply Administration and Operations
31XX	Traffic Management	33XX	Food Service
34XX	Financial Management	35XX	Motor Transport
40XX	Data Systems	41XX	Marine Corps Exchange
43XX	Public Affairs	44XX	Legal Services
46XX	Visual Information	55XX	Music
57XX	Nuclear, Biological and Chemical	58XX	Military Police and Corrections
59XX	Electronics Maintenance	66XX	Aviation Logistics
68XX	Meteorological and Oceanographic (METOC) Services	70XX	Airfield Services

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C. FACTOR LOADINGS OF COMPOSITE DIMENSIONS

Enlisted First Term Male Rotated Factor Pattern of Satisfaction Variables

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Communalities
Satisfaction with Leadership and Morale								
LMODEL								
LMODEL	0.74272	0.11905	0.16288	0.07326	0.05925	-0.00224	0.04708	.60344
LINNOV	0.73531	0.14553	0.18234	0.04417	0.05424	0.07218	0.06626	.60960
LEXPECT	0.72646	0.12212	0.18458	0.10479	0.06491	0.02596	-0.02104	.59304
LFDBK	0.72636	0.14622	0.13840	0.04904	-0.00804	0.10497	0.09053	.58982
LFAIR	0.72280	0.14076	0.15704	0.08872	0.06549	0.07734	0.16053	.61083
LCOHER	0.71983	0.14221	0.15734	0.09956	0.10086	0.07711	0.04354	.59106
LSUBBOR	0.71595	0.11583	0.16626	0.04853	0.04821	0.08989	0.08712	.57399
LSUPP	0.71518	0.16129	0.20215	0.08653	0.07315	0.18705	0.04306	.62803
LLEARN	0.70965	0.14902	0.19633	0.09311	0.05249	0.12851	0.03151	.59329
LRESOU	0.70762	0.14056	0.14311	0.10992	0.07695	0.06077	0.05474	.56566
LOPENU	0.70322	0.14418	0.13219	0.06005	0.04207	0.08836	0.07161	.55109
LCOMM	0.70181	0.14463	0.14099	0.07193	0.03190	0.09716	0.08422	.55606
LTECH	0.69488	0.12850	0.16958	0.08510	0.08833	0.01670	0.02698	.54417
LREADY	0.69130	0.13311	0.18224	0.09965	0.07536	0.00191	-0.06679	.54890
LGOALS	0.68515	0.14044	0.17739	0.09756	0.03054	0.04283	0.00014	.53290
LINPUT	0.68125	0.12013	0.21739	0.01048	0.04319	0.11499	0.03332	.54210
LFOCUS	0.67812	0.15536	0.15005	0.10672	0.05023	0.02101	0.04362	.52276
LRECOG	0.66808	0.15349	0.09753	0.01765	-0.00721	0.10302	0.23459	.54541
LXTRNG	0.63949	0.15696	0.14347	0.04782	0.00873	0.08145	0.15570	.48741
LREWRD	0.63104	0.18474	0.09303	0.06671	-0.04676	0.11688	0.25762	.52767
LOPENP	0.63070	0.16429	0.11952	0.02836	0.05091	0.10677	0.04040	.45549
LMLEAD	0.61225	0.09661	0.29315	0.04269	0.09280	0.09206	-0.11911	.50322
SMORAL	0.41262	0.23900	0.25501	0.07665	0.02070	0.11543	0.18305	.34554
SOWNUP	0.37885	0.09993	0.13825	0.07285	0.09782	0.08388	0.09828	.20420
Pay and Benefits								
BTOTPAY	0.21542	0.73117	0.15981	0.11154	0.02009	0.04049	0.08148	.62768
BBASPAY	0.12246	0.69553	0.10350	0.04522	0.01848	0.02196	0.04060	.51399
BSLPAYAV	0.17164	0.68359	0.11819	0.03942	0.02756	0.08495	0.07103	.52530
BPCS	0.14055	0.62096	0.11913	0.08385	0.03955	0.06383	0.04041	.43383
BBAH	0.15792	0.53798	0.09623	0.19691	-0.00375	0.06409	0.08448	.37365
BRETC	0.15349	0.53026	0.07222	0.16354	-0.01506	0.09737	0.06335	.35041
BMWWR	0.17312	0.41247	0.13236	0.17748	0.04324	0.06972	0.03084	.25680
BEDUC	0.15508	0.40310	0.14055	0.21203	0.01853	0.27751	0.06914	.33339
Health Benefits								
BMEDAV	0.13763	0.25248	0.09688	0.80382	0.04397	0.08840	0.01499	.74817
BMEDQ	0.20474	0.28755	0.07568	0.69690	0.00261	0.02910	0.08082	.62338
BDENTAL	0.12576	0.28100	0.11255	0.61606	0.02084	0.06608	0.01720	.49207
Current Job								
JRESP	0.34197	0.13915	0.67391	0.06270	0.02987	0.08497	-0.01810	.60283
JCURR	0.26797	0.18775	0.66341	0.07262	0.03936	0.07397	0.13886	.57875
JCHAL	0.26294	0.13246	0.63990	0.05643	0.03724	-0.00518	0.02046	.50116
JMOS	0.25625	0.21027	0.61228	0.08497	0.05438	0.08614	0.09953	.51226
JAUTH	0.36727	0.17311	0.59599	0.07083	0.03458	0.13146	0.08277	.55040
JCONTRIB	0.22123	0.07128	0.41509	0.03854	0.07022	0.10969	-0.18345	.27843

**Enlisted First Term Male Rotated Factor Pattern of Satisfaction Variables
(Count.)**

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Communalities
CASIGN	0.34312	0.25567	0.34872	0.08749	-0.03675	0.23222	0.07004	.37254
JHOURS	0.26488	0.28724	0.33342	0.08336	0.01959	0.12611	0.27810	.36441
Satisfaction with Discrimination								
SGENDER	0.11180	0.01790	0.02626	0.04488	0.71214	0.00726	0.01230	.52287
SRACE	0.13382	0.05288	0.07457	0.00963	0.69753	0.06277	0.05887	.52031
SRELIG	0.06115	0.00343	0.03847	-0.00452	0.68136	-0.00213	-0.04998	.47200
Future Career Expectations								
CDEV	0.30118	0.32436	0.24352	0.15689	-0.00629	0.61165	0.11206	.66655
CADVOP	0.28670	0.24967	0.16832	0.03420	0.04533	0.43560	0.06093	.36954
CSECUR	0.20746	0.24014	0.21513	0.08684	0.13772	0.32724	-0.04801	.28289
Work Equity								
JUSTAFF	0.15447	0.19708	-0.01250	0.03216	-0.02403	0.02647	0.60490	.43107
JWKFAIR	0.36734	0.11240	0.14022	0.07135	0.07581	0.05584	0.46309	.39565

Source: Author

Enlisted First Term Female Rotated Factor Pattern of Satisfaction Variables

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Communalities
Satisfaction with Leadership and Morale							
LMODEL	0.72623	0.03078	0.19529	0.14591	0.11854	0.07064	.60683
LINNOV	0.75542	0.13470	0.18721	0.08851	0.11019	0.05781	.64717
LEXPECT	0.75918	0.15949	0.07745	0.13115	0.03802	0.06776	.63102
LFDBK	0.77639	0.09882	0.13706	0.07713	0.00724	0.22076	.68606
LFAIR	0.75831	0.10439	0.17370	0.05655	0.14684	0.19861	.68030
LCOHER	0.74634	0.18415	0.22348	0.11272	0.12218	0.06334	.67252
LSUBOR	0.64625	0.13824	0.32421	0.08477	0.33022	0.02556	.65875
LSUPP	0.74688	0.22055	0.25919	0.03169	0.09920	0.05738	.68778
LLEARN	0.65828	0.13650	0.25598	0.06866	0.36299	-0.01434	.65417
LRESOU	0.75720	0.17141	0.06665	0.08279	0.02409	0.02389	.61518
LOPENU	0.74284	0.10523	0.20452	0.01696	0.08300	0.12013	.62632
LCOMM	0.67680	0.08804	0.25493	0.05865	0.37615	-0.02641	.67642
LTECH	0.68449	0.12976	0.06634	0.11305	0.13915	-0.09701	.53131
LREADY	0.70589	0.10260	0.11691	0.07812	0.07711	-0.05468	.53750
LGOALS	0.62883	0.09940	0.07824	0.04155	0.40163	-0.00845	.57453
LINPUT	0.69147	0.13339	0.28774	0.04160	0.33630	0.00253	.69355
LFOCUS	0.65771	0.09720	0.20182	0.10055	0.12522	0.03448	.50974
LRECOG	0.73025	0.09208	0.12925	0.01332	0.06498	0.16394	.58971
LXTRNG	0.61838	0.11086	0.15427	0.08525	0.10627	0.18440	.47104
LREWRD	0.70844	0.11760	0.14749	0.09207	0.01512	0.16320	.57280
LOPENP	0.64688	0.13211	0.22584	0.03569	0.07894	0.12288	.50951
LMLEAD	0.66334	0.10604	0.26029	0.05947	0.00389	0.02708	.52330
SOWNUP	0.37392	0.13323	0.09193	0.10375	0.21880	0.20160	.26529
SMORAL	0.34005	0.21625	0.25225	0.08258	0.27504	0.19708	.34734
Pay and Benefits							
BTOTPAY	0.14011	0.74658	0.19376	0.13805	0.07116	0.10198	.64908
BBASPAY	0.11367	0.78194	0.09140	0.01678	-0.03543	0.01903	.63459
BSLPAYAV	0.11501	0.69263	0.19828	0.09378	0.06603	0.00840	.54550

**Enlisted First Term Female Rotated Factor Pattern of Satisfaction Variables
(Count.)**

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Communalities
Satisfaction with							
BPCS	0.13818	0.58542	0.19407	0.13248	0.13675	0.10195	.44612
BBAH	0.12267	0.55206	0.09680	0.18772	0.19746	-0.04097	.40509
BRETC	0.20196	0.58179	0.11251	0.20892	0.13659	0.07034	.45918
BMWWR	0.12525	0.32078	0.08912	0.28665	0.07583	0.06081	.21814
BEDUC	0.13156	0.34959	0.18664	0.21747	0.21313	0.14606	.28840
Health Benefits							
BMEDAV	0.11901	0.20701	0.05849	0.85996	0.17893	0.08764	.83966
BMEDQ	0.14621	0.22304	0.01424	0.72281	0.08759	0.16398	.62834
BDENTAL	0.11112	0.24512	-0.01424	0.56369	0.08283	0.03710	.39861
Current Job							
JCURR	0.30695	0.17757	0.66077	-0.03783	0.13747	0.05171	.58536
JRESP	0.45659	0.18715	0.63247	0.04470	-0.09887	0.17063	.68441
JPMOS	0.20477	0.17773	0.60237	-0.00851	0.10546	0.02827	.44836
JAUTH	0.46117	0.24145	0.59923	0.04024	0.01625	0.23659	.68791
JCHAL	0.30864	0.14868	0.59238	0.00506	-0.07896	0.01409	.47473
JCONTRIB	0.17121	0.17498	0.46455	0.09748	0.00441	-0.20579	.32761
CASIGN	0.36912	0.26060	0.37604	0.16103	-0.04081	0.01753	.37347
JHOURS	0.26571	0.24489	0.33999	0.02501	0.18884	0.26488	.35262
Discrimination							
SRACE	0.17129	0.15558	-0.00225	0.08764	0.55448	0.10872	.38049
SGENDER	0.14387	0.16927	0.17617	0.11238	0.47381	0.23641	.37340
SRELIG	0.07471	0.03800	-0.05213	0.06023	0.25252	-0.00165	.07713
Work Equity							
JUSTAFF	0.08740	0.08273	-0.03683	0.13851	0.09300	0.64687	.46212
JWKFAIR	0.30165	0.08569	0.11378	0.12831	0.13220	0.47344	.36936

Source: Author

Enlisted Career Male Rotated Factor Pattern of Satisfaction Variables

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Communalities
Satisfaction with								
Leadership and Morale								
LLEARN	0.75963	0.178520	0.09393	0.03659	0.04096	0.08134	0.07216	.63257
LMODEL	0.75200	0.200320	0.10182	0.08027	0.07337	0.02673	0.08642	.63600
LOPENU	0.74633	0.163730	0.14379	0.04861	0.052410	0.04287	-0.00377	.61145
LFDBK	0.74159	0.132190	0.14359	0.06222	0.034120	0.04357	0.05154	.59764
LEXPECT	0.74137	0.153420	0.09625	0.10300	0.071070	0.04360	-0.03469	.60120
LINNOV	0.73829	0.212250	0.12151	0.03388	0.072840	0.13321	0.02883	.62990
LSUPP	0.73624	0.219260	0.12906	0.04579	0.074270	0.15054	0.02930	.63790
LFAIR	0.73370	0.128710	0.15010	0.13854	0.124120	0.07260	0.13870	.63651
LSUBOR	0.73007	0.214690	0.07002	0.04398	0.057710	0.07343	0.10048	.60475
LINPUT	0.73005	0.229120	0.08284	0.03658	0.043740	0.07226	0.01712	.60110
LCOHER	0.72925	0.195550	0.15298	0.08715	0.111030	0.04652	-0.02496	.61615
LCOMM	0.72144	0.185260	0.11565	0.07450	0.060330	0.02084	0.08576	.58514
LREADY	0.72000	0.194740	0.12490	0.12519	0.072390	0.11540	-0.03984	.60774
LGOALS	0.71597	0.136520	0.15988	0.02938	0.050960	0.02710	-0.00609	.56103
LRESOU	0.70149	0.146280	0.12007	0.06781	0.049150	0.17264	0.05431	.56766
LFOCUS	0.69493	0.121700	0.12898	0.09940	0.059660	0.06133	0.11202	.54412

**Enlisted Career Male Rotated Factor Pattern of Satisfaction Variables
(Count.)**

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Communalities
LRECOG	0.68427 0.08094 0.11656	0.06310	0.02758	0.10947	0.09643			.51439
LTECH	0.68384 0.12972 0.09483	0.07882	0.08369	0.16401	0.12060			.54811
LOPENP	0.67074 0.19446 0.12582	0.02862	0.04360	0.03115	-0.00719			.50727
LXTRNG	0.65116 0.04309 0.12125	0.14069	0.08886	0.05929	0.22841			.52394
LREWRD	0.64436 0.09487 0.14573	0.07285	0.01514	0.13268	0.15182			.49162
LMLEAD	0.62060 0.35568 0.11715	0.06862	0.10569	0.06253	-0.22266			.59474
SOWNUP	0.44276 0.13971 0.04851	0.03452	0.17733	0.10562	0.19394			.29931
JWKFAIR	0.41532 0.11684 0.12769	0.10576	0.06771	0.09341	0.36128			.35746
SMORAL	0.41446 0.28300 0.12559	0.05813	0.07172	0.04677	0.18981			.31437
Pay and Benefits								
BBASPAY	0.10395 0.10001 0.77609	0.02521	-0.03555	0.06681	0.01411			.62968
BTOTPAY	0.12562 0.13685 0.72251	0.10582	0.02480	0.14963	0.04069			.59239
BSLPAYAV	0.10230 0.04264 0.59129	0.06216	0.00314	0.11771	0.06111			.38337
BBAH	0.14515 0.03462 0.58602	0.17258	0.01592	0.04052	0.08368			.40436
BPCS	0.20113 0.10571 0.50707	0.08997	0.06941	0.15983	0.10141			.35749
BRETC	0.11922 0.10361 0.42958	0.15000	0.02454	0.02499	0.04391			.23513
BEDUC	0.18158 0.17372 0.27775	0.19430	0.07153	0.23100	0.03032			.23744
BMWRC	0.14590 0.12966 0.25854	0.18226	0.07021	0.06155	0.05931			.15039
Health Benefits								
BMEDAV	0.11188 0.04450 0.20621	0.83156	0.05362	0.06534	0.05138			.75828
BMEDQ	0.18980 0.08617 0.22330	0.71792	0.02048	0.06239	0.05451			.61600
BDENTAL	0.09214 0.06413 0.21537	0.56854	0.04250	0.09399	0.05883			.39632
Current Job								
JRESP	0.31587 0.70235 0.13774	0.00436	0.01590	0.07475	-0.02465			.61850
JCURR	0.26428 0.68446 0.07145	0.09199	-0.00491	0.08320	0.12962			.57564
JAUTH	0.36660 0.63705 0.12417	-0.00498	0.00826	0.04396	0.09909			.56748
JCHAL	0.19319 0.62950 0.11574	0.06679	0.09694	0.06534	-0.01830			.46545
JPMOS	0.25917 0.56621 0.13068	0.08068	-0.005370	0.16401	0.10240			.44876
JCONTRIB	0.20317 0.35439 0.03478	0.01694	0.12527	0.11809	-0.12844			.21450
CASIGN	0.22154 0.32846 0.22683	0.09420	-0.026650	0.20867	0.08176			.26823
Satisfaction with Discrimination								
SRACE	0.18942 0.02922 0.03343	-0.01588	0.77331	0.04650	0.08216			.64501
SGENDER	0.17617 0.08370 0.07836	0.06099	0.69776	0.02838	-0.00659			.53561
SRELIG	0.07045 0.02535 -0.01068	0.06216	0.63357	0.08706	-0.04020			.42019
Future Career Expectations								
CADVOP	0.17279 0.14156 0.27785	0.05400	0.09233	0.61274	0.06677			.51844
CSECUR	0.13209 0.18189 0.19361	0.11092	0.09294	0.54291	-0.00202			.40370
CDEV	0.30328 0.25081 0.26668	0.11930	0.05781	0.53841	0.14239			.55374
Work Equity								
JUSTAFF	0.15539 0.00798 0.18119	0.07789	-0.014620	0.04867	0.57317			.39421
JHOURS	0.20895 0.36046 0.23257	0.10127	0.01192	0.08756	0.38310			.39251

Source: Author

Junior Grade Male Officer Rotated Factor Pattern of Satisfaction Variables

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Communalities
Satisfaction with Leadership and Morale								
LCOHER 0.77804 0.08653 0.09399 0.05407 0.05921 0.02430 0.06073 .63237								
LLEARN 0.76938 0.05987 0.16118 0.08670 -0.02960 0.02032 0.10723 .64182								
LOPENU 0.76172 0.08586 0.14193 -0.02091 0.00566 0.00296 0.05840 .61161								
LMODEL 0.75953 0.13735 0.11323 -0.07216 0.01639 0.04950 0.00590 .61653								
LRESOU 0.73965 0.17716 0.13578 0.05960 0.07715 0.09619 -0.02933 .61651								
LREADY 0.73790 0.11575 0.14761 0.10192 0.00668 -0.00497 -0.01685 .59043								
LGOALS 0.73630 0.09796 0.18592 0.08656 -0.01541 0.07910 -0.00334 .60029								
LEXPECT 0.73619 0.08683 0.10315 0.10764 0.09114 0.05919 -0.09803 .59316								
LSUBOR 0.73302 0.03078 0.09203 0.05377 0.05896 0.03682 0.08974 .56251								
LMLEAD 0.73069 0.10816 0.21372 -0.00046 0.11486 -0.04427 -0.08906 .61436								
LFAIR 0.72856 -0.00320 0.16153 0.02033 0.21131 -0.00342 0.09266 .61056								
LINPUT 0.72645 0.07460 0.19572 0.11669 0.05531 0.07891 0.09895 .60428								
LINNOV 0.71634 0.03637 0.13728 0.06363 0.15499 0.02753 0.13051 .57916								
LSUPP 0.71604 0.18335 0.19806 0.01779 0.13945 0.06733 0.02229 .61034								
LFOCUS 0.71366 0.20593 0.06984 0.00728 -0.05592 0.02718 0.12318 .57569								
LRECOG 0.70889 0.07068 0.08991 0.03077 0.18112 -0.01583 0.16698 .57749								
LFDBK 0.69407 0.08073 0.07926 0.02345 0.12354 0.10682 -0.06334 .52577								
LCOMM 0.67715 0.06786 0.06677 0.17262 0.04763 0.13363 0.10383 .52829								
LTECH 0.67589 0.16070 0.09944 0.05821 0.04897 0.00515 0.03375 .49949								
LREWRD 0.67361 0.16875 0.09472 0.00302 0.18220 0.01797 0.13697 .54348								
LOPENP 0.66442 0.15968 0.10650 -0.05227 0.12473 -0.05823 0.04491 .50198								
LXTRNG 0.60832 0.09613 0.06245 0.12705 0.00676 -0.00505 0.24484 .45935								
JWKFAIR 0.43372 0.07369 0.07792 0.00476 0.21925 0.08139 0.23514 .30961								
SOWNUP 0.33654 -0.00109 0.12944 0.14004 0.14873 0.00745 0.10313 .18243								
Pay and Benefits								
BTOTPAY 0.18115 0.84097 0.09130 0.02468 0.05735 -0.00279 -0.04459 .75427								
BBASPAY 0.09674 0.76971 -0.01730 0.08662 0.07105 -0.04690 -0.07497 .62248								
BBAH 0.10049 0.56652 0.00674 0.10464 0.08771 0.03572 0.03122 .35198								
BPCS 0.12474 0.54708 0.06690 0.16360 0.11600 0.04322 0.11457 .37454								
BSLPAYAV 0.02344 0.51924 0.08440 0.10718 0.14130 -0.00158 0.08615 .31616								
BMWWR 0.13733 0.39767 0.11053 0.12994 0.05195 0.00107 0.15684 .23339								
BRETC 0.13918 0.39303 0.22255 0.13280 0.07086 -0.00159 0.13205 .26346								
BEDUC 0.09033 0.34880 0.29383 0.07438 0.00988 0.05748 0.19060 .26141								
Health Benefits								
BMEDAV 0.09324 0.23504 0.06032 0.83917 0.00907 -0.05564 0.03321 .77606								
BMEDQ 0.13701 0.26897 0.03242 0.77591 0.04700 0.06017 -0.08017 .70646								
BDENTAL 0.11596 0.23214 0.03944 0.59482 0.05894 -0.01509 0.08041 .43287								
Current Job								
JCHAL 0.17290 0.05971 0.76322 0.05993 0.18283 0.02855 -0.03955 .65536								
JRESP 0.28300 0.17798 0.72682 0.06782 0.08085 0.07002 -0.12292 .67118								
JCURR 0.17723 0.00119 0.68760 0.01635 0.12095 0.04767 0.24995 .58385								
JCONTRIB 0.24019 0.04168 0.60565 -0.01649 0.00852 -0.00374 -0.26590 .49730								
JAUTH 0.40610 0.17641 0.54589 -0.01911 0.10322 0.13636 0.06249 .52755								
JPMOS 0.23017 0.19492 0.49189 0.06166 0.17033 -0.00741 0.30398 .45819								
JCHAL 0.17290 0.05971 0.76322 0.05993 0.18283 0.02855 -0.03955 .65536								
SMORAL 0.37929 0.14764 0.38072 0.04165 -0.09317 -0.06462 0.12222 .34013								
Discrimination								
SGENDER 0.13711 0.00120 0.01846 0.01015 0.02815 0.67276 0.01430 .47284								
SRACE 0.05635 0.00771 0.01043 0.00832 0.01591 0.63268 0.01913 .40431								
SRELIG 0.02530 0.01807 0.06722 -0.02494 -0.06491 0.60514 -0.02578 .37718								

**Junior Grade Male Officer Rotated Factor Pattern of Satisfaction Variables
(Count.)**

Composite Dimensions Variables	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Communalities
Satisfaction with Future Career Expectations								
CADVOP	0.19817	0.24929	0.14282	0.07761	0.73606	-0.00751	-0.02188	.67016
CSECUR	0.20462	0.22104	0.11216	0.01972	0.59509	-0.01612	0.03900	.45960
CDEV	0.21211	0.25721	0.29126	0.09629	0.49193	0.01601	0.32164	.55096
CASIGN	0.18151	0.20709	0.25444	-0.01051	0.31070	-0.09397	0.22091	.29485
Work Equity								
JHOURS	0.15996	0.29939	0.12518	0.04015	0.06929	-0.02177	0.41539	.31032
JUSTAFF	0.23386	0.25773	-0.12718	-0.02070	0.07298	0.02429	0.40548	.30805

Source: Author

BIBLIOGRAPHY

Cotton, J.L. and Tuttle, J.M., "Employee Turnover: A Meta-analysis and Review with Implications for Research." *Academy of management Review*, 11 (1), 55-70, 1986.

Cymrot, Donald J., Mayberry, Paul W., Mara, Michael, "Revolution in Personnel Affairs: Rethinking the Military Personnel System for the 21st Century," C.N.A., 1998.

General Accounting Office, "Military Personnel: Preliminary Results of DOD's 1999 Survey of Active Duty Members," GAO/T-NSIAD-00-110, March, 8, 2000.

General Accounting Office, "Military Personnel: First-Term Personnel Less Satisfied With Military Life than Those in Mid-Career," GAO-02-200, 2001.

Goldberg, Matthew S., "A Survey of Enlisted Retention: Models and Findings," C.N.A., 2001.

Maj. Goodrum, B.W., "The Marine Corps' Deep Battle: Career Force Retention," Retrieved January 14, 2004, from USMC web site:
[https://lnweb1.manpower.usmc.mil/manpower/mi/mra_ofct.nsf/4b21a27c9980dd2a85256a3b006b9f90/dfd6c54b36ef2baf85256aa400678fd7/\\$FILE/Marine%20Corps%20Deep%20Battle.pdf](https://lnweb1.manpower.usmc.mil/manpower/mi/mra_ofct.nsf/4b21a27c9980dd2a85256a3b006b9f90/dfd6c54b36ef2baf85256aa400678fd7/$FILE/Marine%20Corps%20Deep%20Battle.pdf)

Hocevar, S., "Preliminary Analysis of 1999 USMC Web-Based Exit Survey," Naval Postgraduate School, Monterey, CA, 2000.

Kocher, K.M. and Thomas, G.W., "A Preliminary Analysis of the 1999 USMC Retention Survey," Naval Postgraduate School, Monterey, CA, May, 2000.

Lee, Thomas W. and Maurer, Steven D., "The Effects of Family Structure on Organizational Commitment, Intention to Leave and Voluntary Turnover," *Journal of Managerial Issues*, Vol.XI, Number 4, Winter 1999, pp. 493-513.

Moore, Carol S., Griffis, Henry S., Cavalluzzo, Linda C., "A Predictive Model of Navy Second-Term Retention," C.N.A., CRM 95-245, 1996.

North, James H., Goldhaber, Dan D., Lawler, Kletus S., Suess, Jeremy N., "Successful Officer Careers: Analysis of Augmentation, Promotion, and Voluntary Continuation," C.N.A., CRM 95-55, 1995.

Quester, Aline and Adedeji, Adebayo, "Reenlisting in the Marine Corps," C.N.A., CRM 91-64, 1991.

US Department of Defense, "The Ninth Quadrennial Review of Military Compensation," Vol. 1, Chap. 1, p. 12, 2001. Retrieved January 14, 2004, from DoD web site: <http://www.dod.mil/prhome/qrmc/Vol1/ch1.pdf>

Warner, John T. and Goldberg, Matthew S., "The Influence of Non-Pecuniary Factors on Labor Supply: The Case of Navy Enlisted Personnel," *The Review of Economics and Statistics*, Vol. 66, No. 1. (Feb., 1984), pp. 26-35.

Weiss, Howard M., Macdermid, Shelley M., Strauss, Rachelle, Kurek, Katherine E., Le, Benjamin, Robbins, David, "Retention in the Armed Forces: Past Approaches and New Research Directions, Military Family Research Institute Purdue University, 2002.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California
3. Professor Stephen Mehay
Naval Postgraduate School
Academic Associate, Manpower Systems Analysis
Monterey, California
4. Professor Susan Page Hocevar
Naval Postgraduate School
Monterey, California
5. Kathryn M. Kocher (Code SM/Ko)
Naval Postgraduate School
Monterey, California
6. Genel Kurmay Personel Baskanligi
Bakanliklar-ANKARA, 06100, TURKEY

7. K.K.K. Personel Baskanligi
Yucetepe-Ankara, 06100, Turkey
8. Turkish Army Academy
Kara Harp Okulu Savunma Bilimleri Enstitusu Mudurlugu
Bakanliklar-Ankara, 06100, Turkey
9. J.Gn.K. Personel Baskanligi
Bakanliklar-Ankara, 06100, Turkey
10. The Command of Gendarmerie Schools Library
Jandarma Okullar K.ligi Kutuphanesi
Beytepe-Ankara, 06500, Turkey
11. Yasar Cakmak
J.Gn.K. Personel Baskanligi
Bakanliklar-Ankara, 06100, Turkey